

american **aircraft** **MODELER**

SEPTEMBER 1969 60c 7/-

FULL-COLOR CENTERSPREAD WW-2 GRUMMAN HELLCAT

For the Tenderfoot: FLASHBY 1-- A jet-age rubber job!

For the Rocketeer: EGG-LOFTING ROCKET

Radio Control: BUILD NICK ZIROLI'S FOUGA CYCLONE
Power-assisted scale sailplane



Supertigre's New...

SATURN 60

So, what is the new Saturn 60 from Supertigre? The Saturn 60 is a new engine which has been designed specifically for good idling characteristics and to accept the throttle that will permit good top and performance. An engine with the capability has to have exceptional fuel draw engineered into its basic design. Basically, the Saturn 60 started where the ST 60 left off. Some of the parts are interchangeable. In order to give the engine better fuel draw we eliminated sub-piston induction. Many parts have changed — piston, ring, sleeve, backplate. Incidentally, the Saturn 60 will boast a Dyke's ring. Also, for those people who want extremely low speed — under 2000 rpms — we are including with the engine an extra head gasket for low compression operation. We do not recommend lowering the compression for overall engine performance but it does help for extremely low speed.

Also, the Saturn 60 will boast the new MAG throttle.

This new MAG throttle is described in the lower left hand corner of this advertisement.

Our tests on this engine show the low speed capability to be just under 2000 rpms using a wood 11/6 prop with a plastic spinner. Frankly, we would recommend setting up this throttle to idle at about 2600 rpms thereby giving the user of the engine about 600 rpms insurance against engine failure on a landing approach or in a tail slide. The top end performance of this engine under these circumstances is approximately 12000 rpms using 15% nitro fuel. Our tests were with 15% RoGo. These figures were taken with the low compression gasket in place. We estimate the top end performance at about 13000 rpms running a high compression configuration. The real pay-off with the Saturn 60 is that it is lightweight only 15.5 oz, and the price at least for the time being will remain a modest \$39.98.



The first MAG throttles that will be released will fit the ST 51/56 and 60 Series Supertigres. It will also fit the new Saturn 60. It will fit the G.60 and G.71 Series. In a very short time a smaller MAG throttle will be released for the G.21 Series engines which range from 29 to 46. And, at a still later date, a MAG throttle will be released for the small series Supertigres, essentially the G.20/23. This is an all metal throttle. The high speed needle valve adjustment is completely independent of the low speed operation. With this throttle the drum operates on a cam which moves from right to left approximately .080" as the drum closes. This drum cam will also support the idle needle valve which has a blunt piston shape operating end. As the cam moves in the .080" the idle needle valve reduces the orifice by this amount thereby leaning out the fuel that the carburetor can distribute into the airstream. This sounds very simple but in actual testing many things were found to be critical and were designed to optimum during the testing period. The diameter of the idle needle valve — the size of the orifice — the position of the orifice in the venturi of the throttle, all of these were improved by constant testing. Price: \$9.98. This standard MAG throttle is for pattern work and does not require pressure. We also offer a MAG pylon pressure throttle which is a bored-out version of this throttle for \$14.98.



Bill Bertrand of Detroit set a new distance record. This will give Maynard Hill something to shoot at. Bill flew a model from Windsor to the other side of Toronto using one of our G.21/40 front valve engines and one of our competitors sets of R/C equipment. Bill used needle valve adjust on the model and occasionally stopped his convertible to get out and bring the plane down to where he could hear the engine running so that he could reset the needle valve. Actually, this really added some distance to the flight. Bill started this flight at about 7:30 in the morning and landed in Toronto at about 11:30 establishing a highway speed of from 60 to 70 mph. This is interesting in that his automobile was not acting as a road block out on the freeway. We want to congratulate Bill on his record and we are happy that he was so confident of our product so as to use a Supertigre engine on this record. Price — G.21/40 R/C ... \$23.98.



GOODYEAR THROTTLE
\$14.98

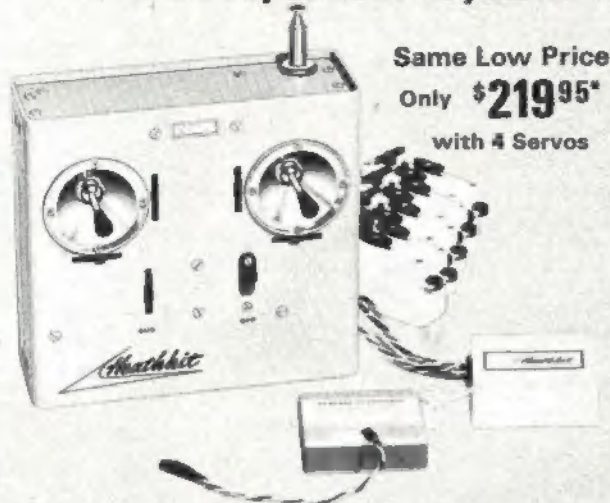


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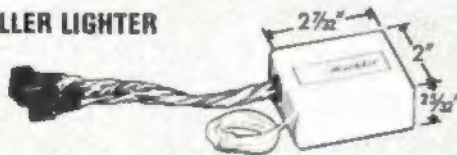


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NEW
Kit GD-69
\$19.95*

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The new Heathkit GD-69 "Thumb-Tach" Tachometer features all solid-state design and battery operation for long life reliability. And the "Thumb-Tach" is so low in cost, so functional, no modeler can afford to be without it. Can be used on model planes, boats, and cars.

Accurate ... Doesn't Load Engine. There's no mechanical or electrical connection between your engine and the GD-69 ... it measures RPM directly using reflected ambient light from the propeller or flywheel of your model ... operates even from several feet away.

Simple To Use. Just set the handy slide switch to the meter scale you want to use ... Low (0-5000 RPM) for idle adjustments or High (0-25,000 RPM) for top end RPM readings ... and aim the lens at the propeller or flywheel. The meter reads directly in RPM. Easily calibrated for single pulse inputs (marked flywheels) and two and three pulse inputs (two & three bladed propellers). A handy pull-out stand lets you use both hands for making engine adjustments too.

Dozens Of Uses: • needle valve adjustments • difference in performance from one fuel to another • difference in glow plug performance • adjust engines to manufacturer's RPM • select gear trains and props • indicates power loss due to aging or worn engine parts • shows changes in peak RPM that you can't hear • especially useful for free-flighters, where a few more RPM can be the difference between winning or losing. And the GD-69 is easy to build too ... just 2-3 hours assembly on one circuit board. Raise your engine performance now ... with the new Heathkit GD-69.

Kit GD-69, 1 lb. ... **\$19.95***

GD-69 SPECIFICATIONS — Range: 0-500 RPM & 0-25,000 RPM. Light Intensity: Dusk to bright sunlight. Pulse ratio: 1, 2, or 3 input pulses per RPM. Battery requirements: 9 V. NEDA #1604 (not supplied). Finish: Blue wrinkle. Accuracy: 3%. Dimensions: 1 1/2" H x 2 1/2" W x 5 1/2" L. Temperature range: 0° to 160° F. Net weight: 10 oz. less battery.

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VOLUME 69, NUMBER 3

SEPTEMBER 1969

COVER PHOTO: Photog Bill Taylor took this shot of his wife Carrie Mae holding a Hegi SB-7 sailplane on the rim of the Canyonlands of Utah. Updrafts give out-of-sight flights of paper gliders — retrieved by jeeps!

WILLIAM J. WINTER — PUBLISHER

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Published monthly by Potomac Aviation Publications, Inc., 733 Fifteenth Street, N. W., Washington, D. C. 20005. William J. Winter, Publisher; Edward C. Sweeney, Jr., Secretary; American Aircraft Modeler Business Manager, Harvey E. Cantrell.

ADVERTISING DEPARTMENT

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Western Advertising Representative: Aaron D. Viller & Associates, 5311 Venice Blvd., Los Angeles, California 90048. Tel: (213) 939-1161

Subscription Rates: In U. S., Possessions and Canada, 1 Year, \$6.00; 2 Years, \$11.00; 3 Years, \$15.00. Elsewhere, \$5 for one year. Payable in advance. Single copies, 60 cents. Six weeks are required for change of address. In ordering a change, write to American Aircraft Modeler, 733 Fifteenth Street, N. W., Washington, D. C. 20005. Give both new and old address as printed on last label.

We cannot accept responsibility for unsolicited manuscripts or artwork. Any material submitted must include return postage. When writing the editors address letters: Editorial Office, American Aircraft Modeler, 733 Fifteenth Street, N. W., Washington, D. C. 20005.

Second class postage paid at Washington, D. C. and at additional mailing offices.
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STRAIGHT AND LEVEL



**A many-splendored thing—that's a free-flight.
It's got character—what you need to fly it successfully.**

TO the writer a free-flight model is always a gas-engined design, either for sport or for competition, never a rubber-powered model, or even a glider. A tow-liner and hand-launched glider are, in fact, free-flight models. By rules, it is generally understood that anything that is not tied to control-lines running to a handle, or not tied by invisible radio impulses, is free-flight. But if you broke in during the great expansion of the 1930's when everyone wanted one of those beautiful little engines, and before Jim Walker launched the U-control age, free-flight meant just that — a gas job. Nothing else.

Free-flights had, and still have, wonderful things going for them. They offer unique experiences which are not to be found in any other form of modeling. They have character. Individuality. They are as alike, and unlike, as people, in unimagined variety, and in endless combinations. They have a way of teaching aerodynamics and the theory of flight, unmatched by any teacher or text book. They can successfully force-feed the facts of flight to the most inept, or to the most experienced and expert. They offer a challenge which some people cannot resist, and most fear. You've got to program them to fly — the fine art of adjusting, that is — and they are by far the most intimate kind of flying machine you can imagine. They offer the jackpot in sublime flying experiences, but they also penalize the careless by committing instant and spectacular suicide. You've got to live on terms with 'em, and, if you can't, then take up something more predictable — like radio control.

A free-flight is a born wanderer. Oh, you can use an engine-run control device which chops the power after, say, ten seconds. And you can use a dethermalizer, which pops up the tail to bring the crate down at a steep angle. The sharp contest modeler handles these things as carefully as a pistol or shot-gun, but the darn things do sometimes get up and away. Especially those innocent sport jobs which no one suspects of wanderlust — until a flirting thermal comes swishing by. So there's the chase. Even a professionally controlled free-flight really eats up the ground on a windy day — if you want to rack up a winning flight time. Kind of keeps the waist-line down. It ain't for the flabby.

And it is a bomb. It is light. And it is powerful. Man, how powerful. Stand there with this roaring thing in your hand and turn it loose into, you hope, its natural pattern, and you know why some guys fight bulls. Or climb mountains. The darn thing is there, so to speak. And you've got to find out. Too often you do. The suspense is like sending men to the moon. Hit it right and your heart pounds in unimaginable ecstasy. Rack it up and you know what frustration really means. If it is in your blood, you come back

for another bout like the KOed prize fighter who "knows" he can take that hard-punching other guy. Maybe.

You just can't launch this bomb any old way. It is designed to produce a pattern to make it flyable. You enhance or fortify this pattern by careful adjustments, and sneaking-up-on-it test flights which gradually add power and engine run. A slip anywhere along the line, overconfidence, too-much hurry-up, a let-down of caution, and you come unstuck — as does the crate despite all the glue in the world.

Done right, the ship keeps its nose up, and bores into the sky. If it isn't right, that nose may drop, bit by bit, and the circle tightens into a dance of death. You have no buttons to push. You push your feet through the ground. And if it bores on up, it must not swoop into a crazy stall when that powerhouse stops pulling. It should slip smoothly into its gliding circle — for which you have adjusted separately from the power-on flight. And you hope you haven't fouled up one at the other's expense. Make it right, and you are rewarded with the best of the sport of kings — if free-flight is your thing.

There was this Half-A pylon job we flew in a pasture evening after evening. Now they say some jobs won't go left — like a Powerhouse, Zeke, or Hogan, if you remember the names. If the nose faded left in the climb — look out! Probably the best power-control device ever invented was the pylon — Goldberg had that on his Zipper, and he got the idea from watching indoor mike jobs with two-stick pylons with covering between. The slipstream hits the pylon and, despite torque, the ship leans over to the right. The more prop blast, the more right.

You'd start off with a fast-revving, tiny one-blader, and the ship would rack over hard left, but go up. Gradually add diameter or pitch through a dozen props, and you could go from hard left to hard right, almost picking out the degrees on the compass. Of course, you had to match rudder trim as you went. The pylon kept you from winding in to the left, and as you swung over the right side on power, a bit of left trim added notch by notch, kept the nose from dropping. You can really play a wide, high pylon. The best control device ever cooked up!

A hot free-flight can actually be kept in a small area, once you get the upper hand. We used to watch Val Luce, Pete Andrews and Johnny Zaic fly all day, flight after flight, tail popping up right after the engine chopped, and DT'ing down for the next quick flight. Over and over. These were thin-winged Half-A's with a high climb rate. So you don't need a prairie when you fly for fun.

Why not try a free-flight? Maybe you are missing something great. It ain't a pylon, but start with a Midwest Sniffer, say. . . .

— The Publisher



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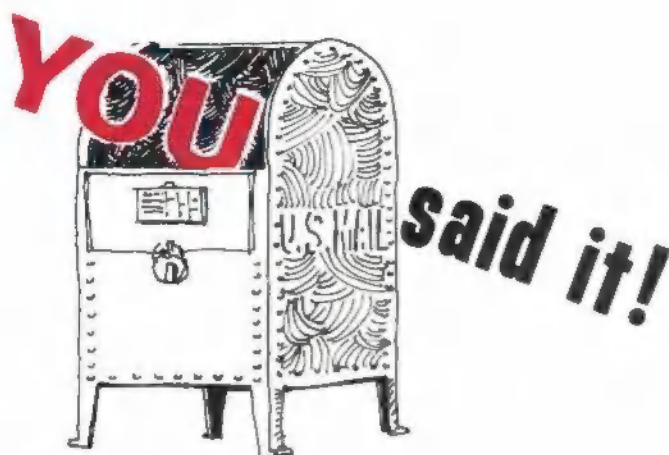
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CARL GOLDBERG MODELS INC.

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A Dyna-jet?

Your May '69 issue was great. However, in all the issues I have (about 2½ years worth), I have not yet seen one article on jets. The only time they are even mentioned is when you print the results of the control-line jet speed event at the AMA Nats.

In the "You Said It" column for the May issue, a Mr. Bob Strobel complained about no jets for models. You mentioned ducted fans and electric models, but failed to mention the Dyna-jet. Recently, I was given a Dyna-jet and a Eureka F-100 Super Sabre control-line scale model. I have almost completed the model and I have test run the engine. I found it easy to start and maintain. I use white gas for fuel, which is pretty cheap compared to five bucks for a gallon of glow fuel. Why don't you give the Dyna-jet a little publicity? They are loads of fun.

Jay Coward, Winchendon, Mass.

The pulse-jet type of engine is as noisy as 10,000 mooing cows. And it gets hotter than a soldering iron, which poses weighty problems, and we do mean weighty—in terms of pounds, in insulation for enclosed installations. Ed.

Tenderfoot contest in school

When my son Richard took a copy of AAM to school and showed the article on the Flying Funtique Tenderfoot Contest, it was an immediate hit and they decided to build, although none of them had built a box fuselage of any kind, or anything as complicated. Of the four started, one was not finished today when Willy's Dad took the pictures.

Your whole Tenderfoot series has been tops, and it gets top billing from these boys. Richard also wants me to tell you he likes the centerpiece color drawings. The only problem is we will shortly run out of space on his walls. Congratulations on your contest, and to Bill Hannan on his interesting and easy-to-build design. Richard and Garrick have had success with Dave Linstrum's Rapid R.O.G.ER... although without landing gears.

Many thanks for your efforts on the beginners' behalf.

Ed Whitten, New York, N. Y.

Club solved the problem

About five years ago I started modeling, and unfortunately my first plane was plastic. It ended up in pieces. I had worked hard selling Christmas cards to earn it, so this was discouraging. Gradually I saved enough money to buy a Guillow's trainer No. 1. I had saved the engine off of my plastic plane so I was all set. There was only one problem. I was scared to death of the motor.

Gradually I overcame my fear and really learned how to fly. Soon the friend who helped me get started and I had all our friends flying. They all had planes, and we really kept the place buzzing. Before I knew it I was up with the bigger engines. I loved it, but the neighbors hated it. Many a time I was chased out of a field.

They started to build a park down the street, so I thought "oh boy." I'll be able to have them put in a runway for us. After all, we had loads of kids who would use it. They turned us down. So I went down to fly anyway. I had just gotten into flight in when a police car pulled up. "Sorry Sonny." He had received a complaint. The people just don't want anything to do with modeling. This stuff really sickens you.

The thing to do was to join a club. My friend was in one but he was older, had more money, and a way to get there. So last August '68, I met a man who was willing to help me. If it wasn't for him I would have never gotten into the Circle Burners, which is a control-line club. When you have a problem there is always someone to ask who has the answer, and they are always willing to help. They have contests (annuals) which really are fun.

Last September I entered high school as a freshman. I had always wanted to start a model airplane club, and this is where I found help. For a sponsor at high school, we got a teacher who was a bomber pilot during WW II. At our meetings we get to see movies of real airplanes. I borrow these from a man who runs a ground school at night at the high school. I wonder if you

could send me any information on how to make our club a better one.

Currently I am an AMA member that is mainly interested in C/L stunt. I am 14 years old, a junior, and I belong to the Garden State Circle Burners, which is AMA chartered. I subscribe to AAM.

Frank Deming, Pequannock, N. J.

Frank, sure don't know how to tell you how to make a better club. Perhaps some club secretaries, or leaders, will write you in our care. You should ask AMA. Ed.

Designing simplified

The other day I saw your magazine for the first time, and being a model airplane nut I picked it up. After reading it I thought AAM was great, and I decided to design and build my first radio-control plane.

Since all the previous planes I built, have been from kits, when it came to designing one, I had a lot of questions such as: how big a wing will I need, and what is the best airfoil curve for the wing? The answers to my questions, and I am sure other modelers' questions, were very clear in articles such as "Aerodynamics Simplified" in your May '69 issue.

These are the kind of articles I like to see.

Ken Krause, Scotch Plains, N. J.

Construct and create

I subscribe regularly to AAM (regardless of New York dock strikes) and find the latest format excellent, especially the scale sections on which I am particularly hooked. The advertisements contained in each copy really make my mouth water, and my eyes green with envy at the vast amount of materials available to the modeler in the States.

As you probably know, we now have a 10% tax on our goods, above our purchase tax. I often wonder how many cases of juvenile crime could have been averted, had the youngsters concerned been able to afford the materials at a reasonable price in order to construct and create from basic materials, instead of wrecking, and causing untold damage around the country.

More power to your most excellent magazine. I have two sons, and they are catching on to this modeling kick but fast.

Ernest R. Billald, Nottinghamshire, England

Old-timers remembered

I was very pleased to see your fine editorial on behalf of Gustave Whitehead and his early flying efforts. Your comment was a fine piece of writing and I know the CAHA will be more than pleased to know of your interest in Whitehead.

We have a parallel situation here in California. Professor Montgomery was ridi-



"GESUNDHEIT!"

culed for his gliding experiments by such noted authors as Charles Gibbs-Smith and the late Professor Pearl Young. Montgomery never developed anything in powered aircraft but he performed many controlled gliding flights in his aircraft and the proof is available. Long before the Wrights flew!

So keep up the good work. These old-timers deserve a break. Without their foresight such things as the Boeing 747 would not have been possible.

Willis L. Nye, Castro Valley, Calif.

Sticks and stones . . .

Your editorial in the June '69 issue almost restores confidence in the purportedly innate fairness of the average American. You have stated the Whitehead case as it is, without bias. Naturally, I am prejudiced now, although not so in the beginning of my research.

Like Whitehead, I've had for more than 30 years some quite plain and fancy names bestowed upon me. Nothing changes a neutral viewpoint so radically as discovering that self-styled authorities have nothing but name-calling and arm-chair opinion to offer in response to honest reporting. A little sincere genuine study could merit some respect.

Stella Randolph, Rockville, Md.

Open letter to plastic companies

I am submitting this model kit campaign letter with the hopes that you will print it.

For many years I have been an active model-building fan of American early 20's aircraft, building them from kits and from scratch, in 1/72 scale. Presently, I am conducting a vigorous campaign on behalf of our society to promote the production of model plastic corporations of the following most neglected, but well known American aircraft: Curtiss J.N.-4 series, Lincoln Standard J-1, Thomas Morse MB-3, Douglas -02 series, Boeing PW-9, Fokker T-2, Consolidated PT-1, OX-5 Travel Air, Waco 11 (and 10), Long-wing Eaglerock OX-5, and many others that played a great part in our country's heritage of the air.

Why must these wonderful forgotten birds be skeletons in the closet while too much emphasis is being put on foreign and U.S. aircraft of the World War II era? I am willing to wager that a great number of 1/72 aircraft buffs would welcome the production of the forgotten American airplanes that I have mentioned in this open letter.

I am willing to wager that the sales would soar with the production of these well-known neglected American planes and that nationwide buffs would flock to the hobby shops to purchase a batch for their show cases. I for one would purchase ten Curtiss Jenny kits in 1/72 scale, if they were available now. How about it, plastic companies? Take off those blindfolds, get your heads out the hole and start waking up. Give the World War II and foreign aircraft a rest. Give the rocket age a little rest.

Start taking the neglected birds out of the dusty closet and putting them in 1/72 scale kits for us to build up for our show cases. You will not go broke by giving it a try. Why not start out with the Curtiss Jenny and the famous OX-5 Travel Air? You will be doing a great service to the nation's early 20's aviation buffs, and profit by it. The time is now.

Philip J. Da Costa, American Early 20's Aviation Society, Van Nuys, Calif.

They would appreciate

I have been reading your magazine for a good many months. I've been in R/C modeling about two years, and learned how to fly with a Testor's Skyhawk.

I live near an orphanage and handicapped children's home, and I have been teaching

Latest semi-scale R/C kit from Du-Bro Products . . .



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
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Fancy paint scheme is easily made with felt-tipped marking pens, available in many colors. Tricycle landing gear is functional, assures a safe takeoff every time.

Up-side-down view shows main gear reinforcement — advisable if you fly from rough ground. Use plenty of glue on such joints as rudder-fuselage, rudder-stabilizer, and wing-fuselage.

Flashby I

WAYNE BROWN

FLASHBY-I is not difficult to construct, taking two or three short evenings to finish. It should cost the average modeler about \$2.00 for materials. Some things, such as tools, should be available around the house.

This model is the product of a week in the bush in far-northern Alberta and, in particular, two days that it rained continuously! Having nothing to do but sit in a tent, I began to sketch, then to make a rough drawing. I stuck the drawing into my duffel bag. At home I began to wonder whether this thing might be a good subject for a beginner to start with. It turned out to be one of the best-performing, sport rubber-powered planes I've ever flown, a natural for a first model.

You need a place to build your model. A clean piece of cardboard about 18 by 24" is just about right. Spread the cardboard on an old table or a workbench. Make sure you have good light.

First, transfer the outlines of the body, wing, tail, and all other parts, to the sheets of balsa. Lay the plans on top of the sheets of wood, the right thickness of wood for the right parts, line up to match, then, using a straight pin, poke holes along the outline of the part into the paper plan and into the wood. Remove the plan and, with a soft lead pencil and a ruler as a guide, connect the pin holes. Carefully cut out the part from the sheet of wood with your knife or razor blade.

Here is the proper way to glue together two pieces of wood! This method greatly increases the strength of the joint. First, make certain the two pieces to be glued fit together as closely as you can make them. Next, spread a thin layer of glue on both pieces, then with your finger smear it evenly over the whole surface. Allow it to dry. Don't wipe the glue off your hand on your pants or shirt! It will never come off, and boy, will your mom be mad! Use

an old rag or paper towel. Oldtimers chew the glue off their fingers with their teeth; it's a good time-filler while waiting for the model to dry!

When dried, spread a little more glue onto the two pieces to be joined, spreading evenly over the surface, then put the two pieces together. Use clamps, straight pins or even your mom's spring clothespins, to put pressure on the joint. Let the glue dry thoroughly.

Begin construction by cutting a groove in the nose just a little deeper than halfway through. (See plan.) This is for the piece of aluminum tubing. Glue it in place when you've got the notch the right depth. Glue the two nose cheeks on, one on each side. Make sure you have the wood grain running in alternate directions (like a sandwich). Clamp this assembly tight and then glue the two ribs onto each side of the body (fuselage), making sure that the curved ribs match the curve that you cut out on the fuselage where the wing goes. When the ribs are in the correct position, clamp them as you did the other pieces; lay the fuselage aside to dry.

Turn to the tail assembly. Glue the two pieces of the vertical tail (fin and rudder) together, laying them on the flat workbench to dry. The horizontal tail (stabilizer) is ready the way it is.

Now that the fuselage is dry, remove the clamps and cut a shallow V-groove in the center of the rib-fuselage section, with the center being about 1/16" deep, and extend it out to the outside edge of the ribs. Get it as accurate as you can, because the wing now is glued to the sides of this groove, with the butt ends of the wings meeting in the bottom. Use straight pins and clamps to hold the wing to the curved surface of the ribs. If you cut this groove evenly and have the wings glued and pinned properly, there should be an equal amount of up-

sweep (dihedral) in each one. This should be about 1 1/2 to 2" at each tip. Put aside to dry. Now back to the tail.

From a scrap piece of 1/16" sheet balsa cut two strips 1/16" wide by 3" long. Use a ruler as a guide. These two strips are glued, one on each side, on the top of the rudder. This will form a platform on which you glue the stabilizer. Lay the stabilizer on the workbench, then glue the rudder to it by standing it on end. Try to get the angle between the two as close to 90 degrees as possible.

This completes the tail. When it has dried, glue the whole assembly onto the fuselage. Now the whole airframe is complete, requiring adding only the landing gear, prop, etc.

Now we can work at something different! With your pliers, bend the 1/32" wire into the desired shape for the nose landing gear. Next, try to make the main landing

Bill of Materials

- 1 Sheet 1/16 x 3 x 36" balsa
- 1 Sheet 3/16 x 3 x 36" balsa
- 1 1/32 x 36" music wire
- 1 7" rubber-powered propeller
- 1 Strip 3/16 x 52" rubber
- 1 1/32" inside-diameter aluminum tubing
- 1 3/32" hardwood dowel
- 2 1/4" -diameter light-weight wheels
- 2 Flat washers with 1/32" hole
- 1 Tube glue
- 1 Bottle clear dope
- 1 Sheet fine sandpaper
- 10 Straight pins
- 1 Sharp knife or single-edged razor blade
- 1 3/32" drill-bit and drill
- 1 1/2" -wide paint brush
- 1 Felt-tipped marking pen (any color)



Author demonstrates correct follow-through hand-launch. Model has uncanny ability to fly safely from even bad launches.

An exciting-looking model, this rubber-powered job flies with the best of 'em. Uses plastic prop and wheels.

gear, but remember one is for the left side, and one is for the right, so they will be bent different. Now bend the propeller shaft and cut it off, leaving about 1" extra. Slip the shaft through the tubing in the nose, then put on the shaft the two washers and the propeller. Bend over the end so that it engages the propeller. Cut off the extra length. Next, cut a notch in the bottom of the nose, and also make a small hole for the wire to go into the wood. This will keep the wire from turning sideways. Use regular glue to hold the wire in the notch.

Mount the main landing gear (with glue) against the wing ribs and on the wing itself. Slip the wheels onto the landing gear and apply a drop of glue to the end of the wire to keep them in place. Add the wing tips and landing gear fairings. These last items are not necessary; however, they add a lot to the looks of the model.

To prepare for the paint (dope), sand all the corners round and smooth with fine sandpaper. Do a good job because it will make the difference between a really nice model and a rough mess. When sanded smooth, give it two coats of clear dope. If you have some thinner, or acetone, you can thin down the dope half and half. However, this is not absolutely necessary. Sandpaper the whole model between coats of dope so it is smooth for the last coat.

That fancy design I put on my Flashby was done with the felt-tipped marking pen, ruler and French curve (a draftsman's instrument). Use any design you wish. Make it a jet fighter, or a racer, or whatever you like. Do it carefully. You want something to be proud of.

Now sit back and admire it while you wait for a calm evening. Very nice and you did it all yourself! Calm weather is a must. Not even the hot-shot contest modeler test flies a new plane in the wind! First thing is to check the balance. This is done by stick-

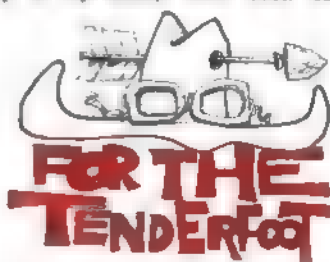
ing two pins, one in each wing tip, right in line with the balance point or CG (center of gravity). Suspend the model between two books on the pins. Does it sit level? If not, add weight to the high end. It might be the nose or the tail, depending which end you built the lightest. All set?

Now find a field that has tall grass and no trees. This grass acts as a cushion if the model happens to go the wrong way. From shoulder height, glide the model by gently throwing it at a spot on the ground about 10 feet away. Watch it closely and remember what it did. Did it glide fairly close to that spot? Or did it climb, then dive? Or just dive? Or turn sharply right or left? If it climbed, then dove, try it a couple of times again. This time throw it a little easier. If it continues to do this, add a little weight to the nose, then try it again. If it just dove to the ground about 10 feet away, it will need weight on the tail.

Should it have turned sharply right or left, check the wing for warps (a twist). If one wing has more twist than the other, the best thing to do is hold it over a boiling kettle and gently twist it the opposite direction and hold it for a minute while it cools. If the model still turns sharply, bend the rudder a little the opposite way. Now you have it gliding fairly close to that spot, or with a very gentle turn in the glide.

Wind the propeller clockwise about 50 to 75 turns and again aim the model at a spot on the ground a little farther away—50 feet. Release the propeller, then gently launch the model at this spot which is directly upwind from you. It should climb a little way then glide down to the ground in a fairly fast glide. If it turned sharply or dove to the ground, refer to the test glides and correct it the same as you did before.

With each flight you can add a few winds to the rubber until you reach the maximum number of turns it will hold without break-

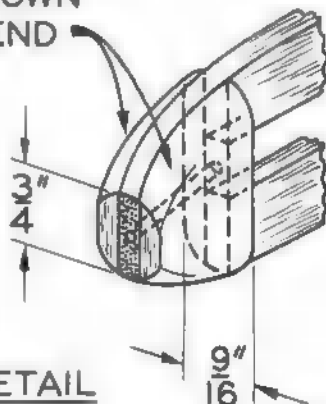


ing. This can be determined by feeling the rubber. If it feels sort of soft it can take a few more turns, but if the knots feel hard, don't wind any more because it will surely break. Fully wound, the model should climb up about 60 feet high, then glide to the ground again, with flight duration depending on the individual model and the amount of rubber used in the plane.

Launching the Flashby from the ground is no different. Just let go and the model will scoot along the ground a short distance, then lift into the air and climb just as it does in a hand-launch—only it won't climb quite so high, since it used up some of its power to take off.

So you are on your own! If you fly it during the afternoon when there are lots of up-drafts (thermals) be careful—it could hit one and head for the clouds! It's happened!

CARVE DOWN AND BLEND



NOSE DETAIL

Be sure to have correct down-thrust on prop-shaft bushing. Angle controls prop thrust.

1-3/4" DIHEDRAL
EACH WING TIP

DIHEDRAL JOINT

↑
FORWARD

LANDING GEAR
GLUED TO WING

WING TIPS
GLUED ON
ANGLE

STABILIZER -
1/16" BALSA

STABILIZER

1/16" SQUARE BALSA IN CORNER -
BETWEEN RUDDER
AND STABILIZER

RUDDER
1/16" BALSA

END
VIEW

WING TIP

FUSELAGE - 3/16"
BALSA

1/8" HARDWOOD DOWEL

POWER - 4 STRANDS
3/16" RUBBER

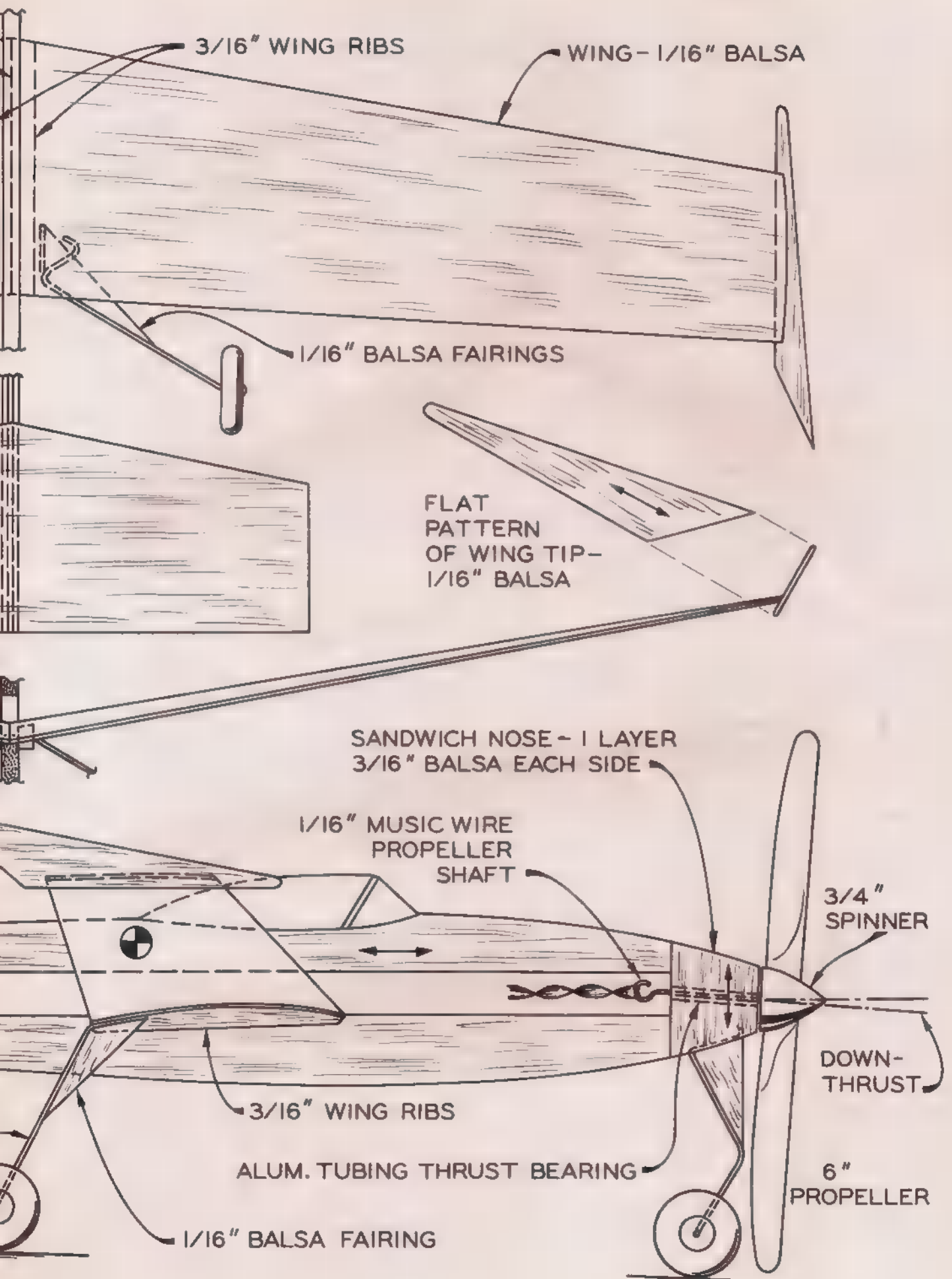
NOTE: SYMBOL ↔ INDICATES
WOOD GRAIN DIRECTION

FLASHBY I

DESIGNED BY WAYNE BROWN

LANDING GEAR -
1/16" MUSIC WIRE

1" DIA. WHEELS

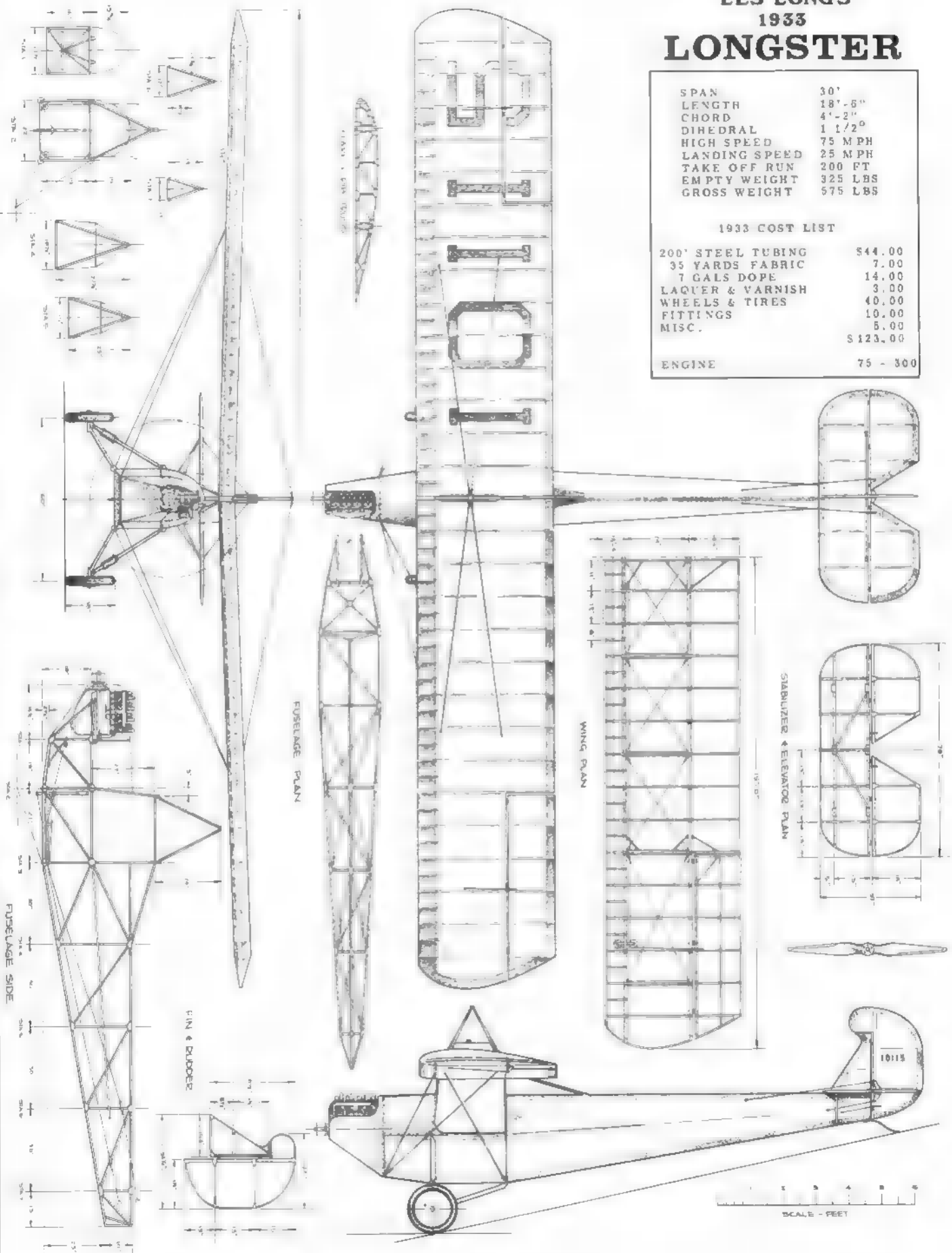


LES LONG'S 1933 LONGSTER

SPAN	30'
LENGTH	18'-6"
CHORD	4'-2"
DIHEDRAL	1 1/2°
HIGH SPEED	75 MPH
LANDING SPEED	25 MPH
TAKE OFF RUN	200 FT
EMPTY WEIGHT	325 LBS
GROSS WEIGHT	575 LBS

1933 COST LIST

200' STEEL TUBING	\$44.00
35 YARDS FABRIC	7.00
7 GALS DOPE	14.00
LAQUER & VARNISH	3.00
WHEELS & TIRES	40.00
FITTINGS	10.00
MISC.	5.00
	\$123.00
ENGINE	75 - 300





**Homegrown
in Oregon**

The Longster

A lightly loaded big wing almost made this a powered sailplane.

ROBERT L. PARKS

THE 1933 "Longster" was a development of an earlier "homegrown" product of Les Long, an Oregon farmer, who designed a series of very successful Longsters. This particular Longster followed a shoulder-wing Longster that was powered by a 35-hp Anzani. To keep the two separated, the 1933 design, being powered by a Henderson motorcycle engine, is commonly referred to as the Henderson-Longster.

The homebuilders were hard pressed in the early '30s to find decent low-powered, low-cost, lightweight engines. The small two- and three-bangers left over from WW I were in short supply, and the small aircraft engines being manufactured were too expensive. Remember, there was a depression on and John D. himself would have looked twice at shelling-out 1500 clams for a 30-hp engine, such as the Bristol Cherub or Wright-Morehouse. The alternative was to turn to automotive powerplants or motorcycle engines, and numerous homebuilts were powered by Harley Davidson twin-VEES and Model-A Fords (Pietenpol).

All of these engines had their drawbacks. The automotive engines had a poor power-

to-weight ratio, and the motorcycle engines would shake the fillings out of your teeth (and bolts out of your flying machine). But they were used, marginal as they were, and the early homebuilder was able to take a swing around the pea patch — most of the time.

Les Long wasn't a typical homebuilder then; he was more than a typical homebuilder. All of his designs reflect sound mechanical engineering and good aerodynamics, both of which were in short supply with most of the roll-your-own designers. He was the Ed Heath of the west coast and his airplanes show a similar design approach in some areas.

The Henderson Longster is a prime example of good light-plane design where the most has been done with the least, the least being an engine that weighed a mere 115 pounds and produced a dubious 27 hp. To extract even this much power, it had to wind up this little mill to 2,700-3,000 rpm — 100% power, 100% of the time. Consequently, engine life was very short and failure (which could be total) was prevented by the insertion of new bearings every few hours. So Les Long had this type of powerplant around which to design an airplane.

Nowadays, every airplane design originates with a mission description. An engine is mated to an airframe to make up a system to perform the mission described. I'm sure that Les never thought of it that way. A mission was a church service and all that had nothing to do with an ardent desire to build a little plane that would just allow him to get in the air and putt around the pasture. This, in fact, was the mission.

Long wasn't small like Ed Heath, so he had to design an airplane with ample lifting power to haul the payload, and flying characteristics that allowed him to operate from grass strips. What he designed was a handsome little bird with a high-aspect-ratio wing, long tail-moment and ample control surfaces. To keep drag to a minimum, lightweight streamlined wires were used to brace the wing in lieu of struts. Airframe structure was minimal but adequate and tipped the scales at a mere 325 pounds with engine.

The Longster bordered on being a powered sailplane which contributed to its success. The long wing and light span-loading was the opposite of many homebuilts of that era which employed barn-door wings, and struggled along on not much more horsepower than the Longster. In planform and size this airplane is very similar to the Aeronca C-2, and it appears that the C-2 may have influenced Les in his design.

The structure of the Longster is a combination of extremely light but simple members assembled in such a way as to be reliable and strong. The fuselage structure is unique in several areas, the first of which is the manner in which the members are connected. At first appearance, one would think that it was a welded-steel-tube structure. The structure is steel tube, but the joints were brazed! Once the joint was brazed, a thin-gage steel gusset was brazed over that and then each tube was riveted with a twopenny shingle nail!

At first glance this type of backyard construction would raise many eyebrows but

Continued on page 70



Fouga Cyclone

NICK ZIROLI

This .09-powered scale model of a famous French jet-powered sailplane is ideal for flat-land soaring.

NOT so many years ago, a flyer's greatest thrill was gliding down a hillside hanging from a sophisticated box-kite. Aviation has come a long way in the last 50 years or so. Bone-breaking hillside gliding has given way to propeller-driven and jet-powered aircraft. But to some, the challenge of gliding, or now more correctly soaring, is the ultimate in flying thrills. Flights for hundreds of miles, at thousands of feet, are made with modern sailplanes.

Radio-controlled model sailplanes have gained great popularity. Slope-soaring on the west coast has brought interest to this phase of modeling. As witnessed by the number of gliders flown at the DC/RC Symposium this year, activity is high here on the east coast. Soaring, be it slope, tow-line,

or power-assisted, will become even more popular in the future. Those that like ram-rodding around the sky at 80 to 100 mph should try gliders for a change of pace.

The French "Fouga Cyclone" has always been in my mind as a model to build. Everything about it is as modern today as it was when it was manufactured in 1949. The prototype was all-metal with fabric-covered control surfaces. A true high-performance sailplane, its auxiliary power was a small turbojet engine. The 100-lb. engine had a maximum thrust of 30 lbs. at 3000 rpm. Being only 16" in diameter and 32" long, it fit easily into a streamline pod behind the canopy. The V-tail placed the tailplanes out of the way of the exhaust.

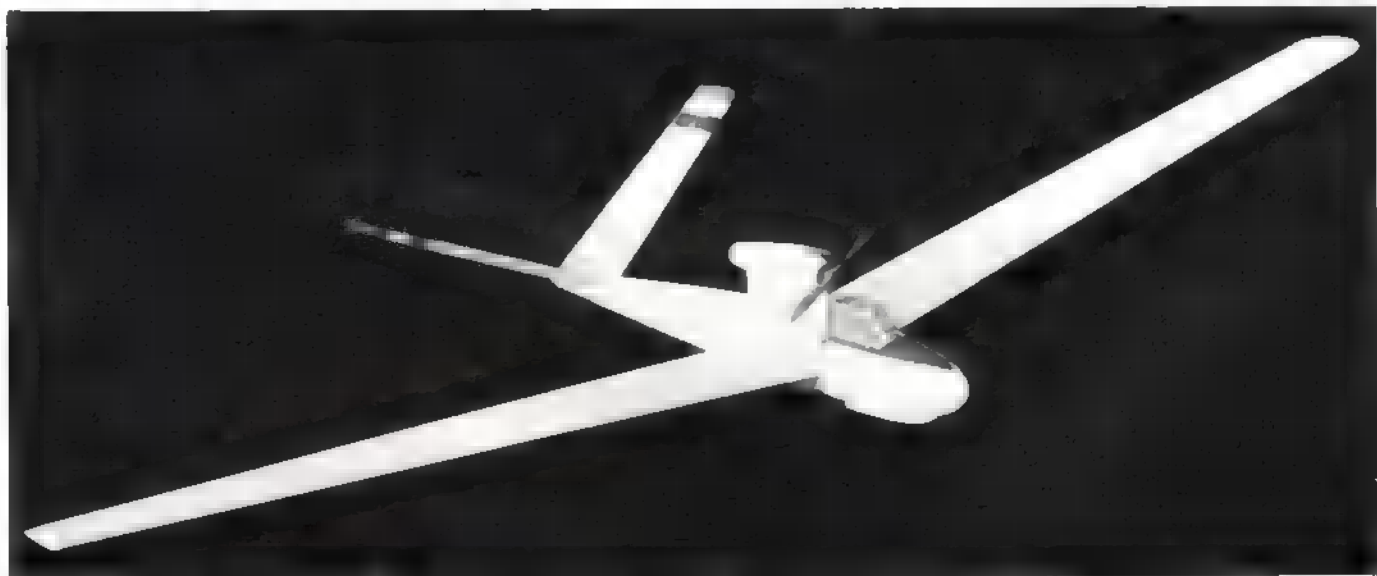
A search through my files uncovered a

3-view and details of the full-size "Cyclone." The original had a wing span of 43 feet. I wanted a model large enough to give soaring performance with proportional equipment. The plan was laid out at a 2" = 1' scale. This produced a wing span of 7' 2", not too big and unwieldy, yet large enough to perform well. Plug-in wing panels take the problem out of transportation.

A powered glider was a must. I did not want to depend upon a tow-line or hi-start, and suitable slopes do not exist on Long Island. The first thought was to place an engine in the jet-pod and raised high enough for the prop to clear the fuselage. This would upset the clean lines of the Cyclone. So the opposite approach was taken. The engine and pod were kept intact. A clearance slot was then made behind the canopy for the propeller. This no doubt cuts down on efficiency. Since all we are interested in is getting altitude, I feel the improved appearance more than offsets this loss. Maximum propeller diameter is seven inches.

The engine is an old McCoy .09 diesel. Instant starting without the help of a booster battery never ceases to amaze those that are unfamiliar with diesels. This provides ample

From any angle the Cyclone looks like a modern sailplane but actually was being produced in France in 1949. At that time it was considered a high-performance sailplane. Jet engine permitted unassisted takeoffs and sustained cross-country flights.



In spite of the engine it is aerodynamically clean. Large control surfaces on V-tail give positive rudder and elevator responses but with relatively flat turns.



power. Plans show a Cox .09. An engine larger than .09 seems unnecessary. A two-minute engine run gets the Cyclone up high enough to seek out thermals.

The original intention was to use the throttle servo to operate an engine cut-off and spoilers. A fuel cut-off would be actuated by moving the throttle control from high to about a quarter of the way to low. The rest of the travel would operate the spoilers, full low giving maximum spoiler extension. Unfortunately, construction proceeded too far, too fast to include them. The model shown does not have this feature, but it could be added to your plane.

Radio equipment used is the new Citizen-ship DP-1 system. The airborne system is, I think, as up to date as any of the new digital systems. A compact receiver and plastic-cased servos with multiple outputs are featured. Servo response is fast.

Since the spoilers were not installed, only two channels were used, one for rudder and one for elevator. There are a number of ways to get the control surface movements necessary with a V-tail that is one up and one down, both up or down, or a combination of both. As can be seen from the pictures, I chose the easiest way out. The rudder servo, hooked up like ailerons only reversed, is mounted on a slide. Elevator action is produced by moving the rudder servo forward or back making each control surface go up or down the same amount. The elevator servo is connected to it to give this movement.

Remember that for rudder control the plane will turn toward the down-going surface. The other one will be up. Co-ordinated rudder-elevator turns are performed just as with conventional surfaces. This system of one servo moving another is adequate for a glider where G forces are low. I would not recommend it on a high-speed multi-ship.

Construction is easier than the seven-tool wing span might lead you to believe. The fuselage, and each wing panel, is 41" long. The model does not become large until it is assembled.

Wing construction follows the method described on his great "Live Wire" series. This is one of the best ways of building a flat bottomed wing. If the board it is built on is true, the wing will be. It is not removed from the plan until it is completed except for the leading edge.

The first piece to be made is the wing tongue. I used 1/16" hard aluminum. You may

prefer plywood; it is easier to obtain and work with. Plywood is shown on the plan. Cut this to size so it can be fitted to the wing slot during construction.

The wing ribs are made by stacking 13 pieces of 1/32" sheet between 1/4" plywood root and templates. Keep the spar cut-outs perpendicular to the rib. Drill two holes through the stack and hold together with the 4-40 screws and nuts. Carve and sand to shape. Cut the spar slots with a razor-saw. Separate them and square each one. Cut out a new tip rib from 1/32" sheet. Use this first set of ribs as patterns and cut out a second set, one rib at a time. Make W-1 and W-3 of 1/4" plywood.

The leading and trailing edges are cut from firm 1/4" x 3 x 48" sheet. If a 48" length is not available, splice 36" together at 45 degrees. Reinforce the splice during construction. Cut four sheets to 41" long. Using a good straight edge, cut them down the center, starting 1" from the edge on one end, and 2" on the other end. This should

produce eight pieces 41" long that taper from 2" to 1" wide. These are used for the leading and trailing-edge sheeting.

Cover the plan with Saran Wrap. Pin down the leading and trailing edge. Cut out and cement the root sheeting and 1/16" x 1/4" lower cap strips in place. Assemble the wing-tongue box on the 1/16" root sheeting. Use epoxy. Use the ribs as a guide to cement the 1/8" x 1/16" hard lower spar down. Cut W-1, 2, 3 to clear the tongue box. Cement all the ribs in place, followed by the 1/16"-sq. top spar.

Cut 1/4" sheet leading-edge cap and cement in place. Sand down to match the ribs. Taper the bottom trailing-edge sheet again to match the ribs. Cement and pin the leading and trailing edge sheets in place. Sheet the wing root top. Cut to length and cement the top cap strips in place. When the assembly has dried, remove from the building board. Sand the front off flat and cement the 1/2 x 3/4" leading edge to it.

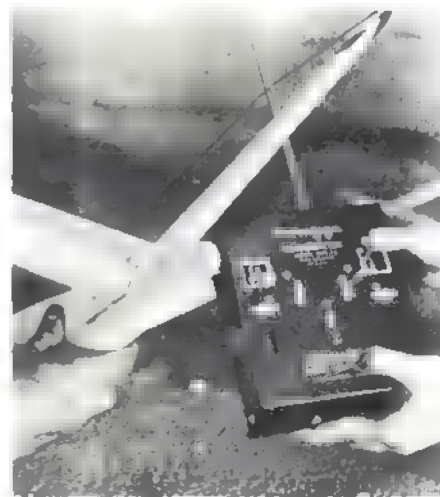
Rough-carve the tip blocks to shape and install. When these have dried carve and sand to shape. A razor-plane makes short work of this type of job.

Cut out the stabilizer ribs from 1/16" sheet. Pin the 1/8"-sq. lower spars down with a

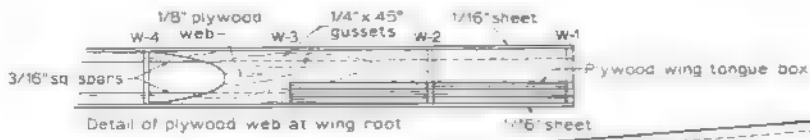
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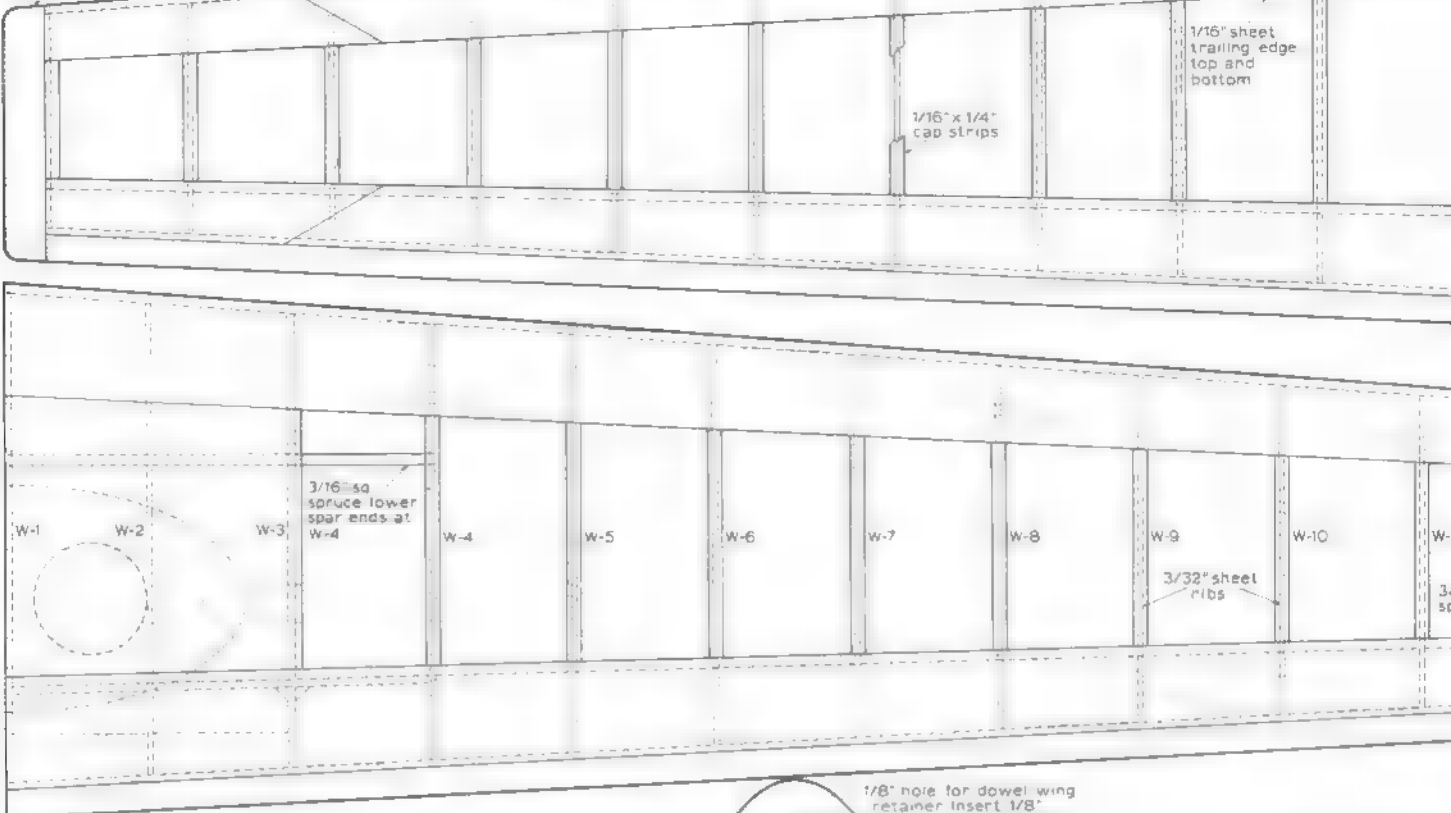
Servo positions show full-right rudder and full-down elevator. Pitch adjustments are easy with RC Craft link between servos.



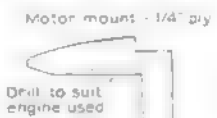
This shows left-rudder command — don't get your controls reversed. Both surfaces move up or down together for pitch control.



Solid soft balsa tips-



Note Construct wing tongue from 1/8" aluminum for windy weather flying

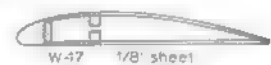


Removable hatch omitted in top view for clarity

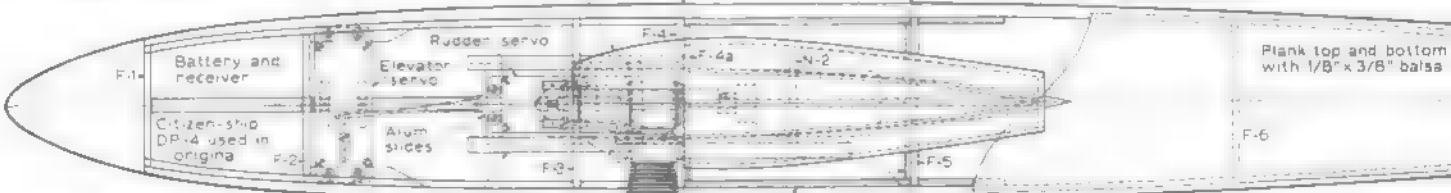
Cowl block hollow as shown

Optional lightening hole
1/8" ply wing tongue

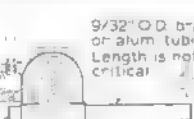
1/8" hole for dowel wing retainer insert 1/8" dowel through bottom of wing



1/8" ply wing



Details for converting Cox Throttle Control to act as muffler and exhaust deflector



Seal end of tubing

Throttle control housing

Alternate method

Tubing may be bent by first filling with molten lead

1/4" x 3/8" grooved hardwood rails

Cox DG Medallion

Motor mount

Wing tongue doubler

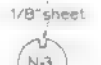
Wing tongue braces

N-1 (make 3)

1 oz tank

N-2

N-3



Solid soft balsa block canopy

Fairing block

1/16" sheet grain vertical

1/8" x 1/4"

F-2

Prop arc block

F-3

F-4

Wing tongue braces

Wing tongue doublers

Wing tongue

1/4" sheet fuselage skin

Solid balsa block nose

F-1

F-2

F-3

F-4

F-5

F-6

F-7

F-8

F-9

F-10

F-11

F-12

F-13

F-14

F-15

F-16

F-17

F-18

F-19

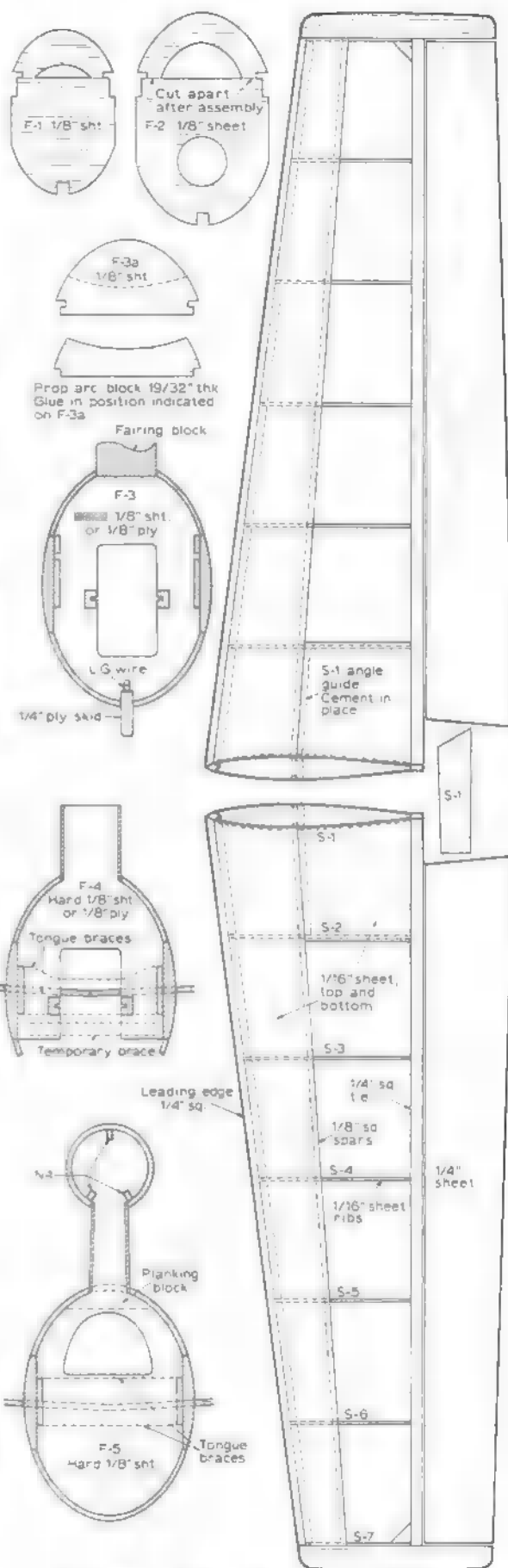
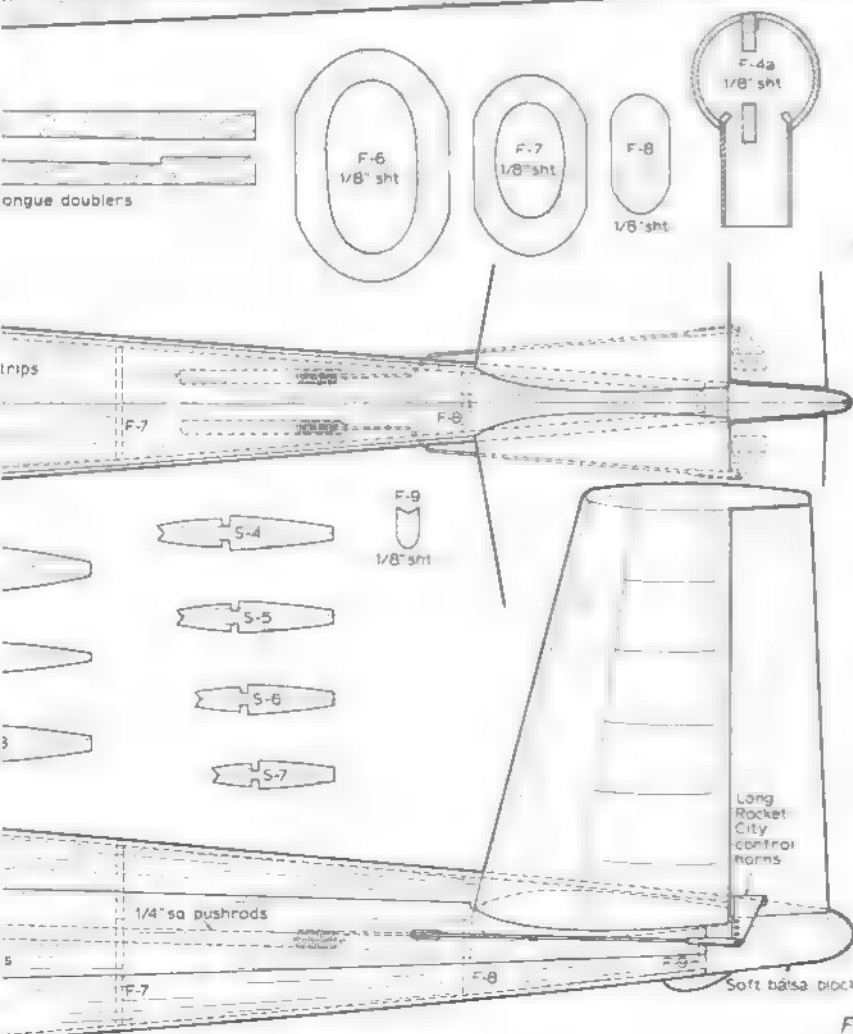
F-20

F-21

F-22

1/4" plywood skid

2-1/2" diam wheel



Fouga Cyclone

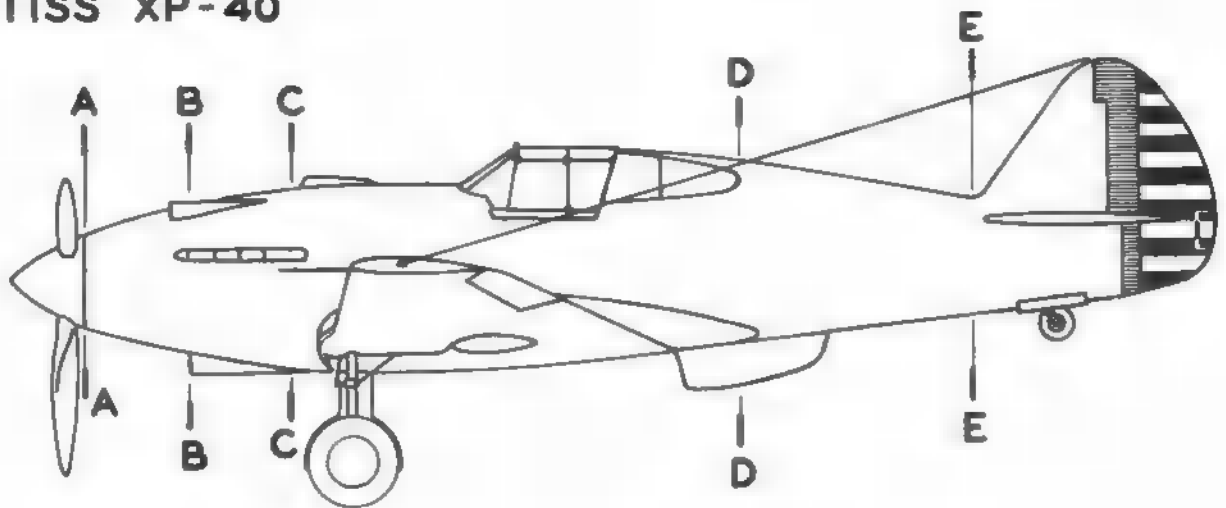
FRENCH ALL METAL JET POWERED GLIDER

SEMI-SCALE (APPROX 2"=1") FOR RADIO CONTROL
Wing span - 35 1/2" Length - 41" Power - 09 cu in

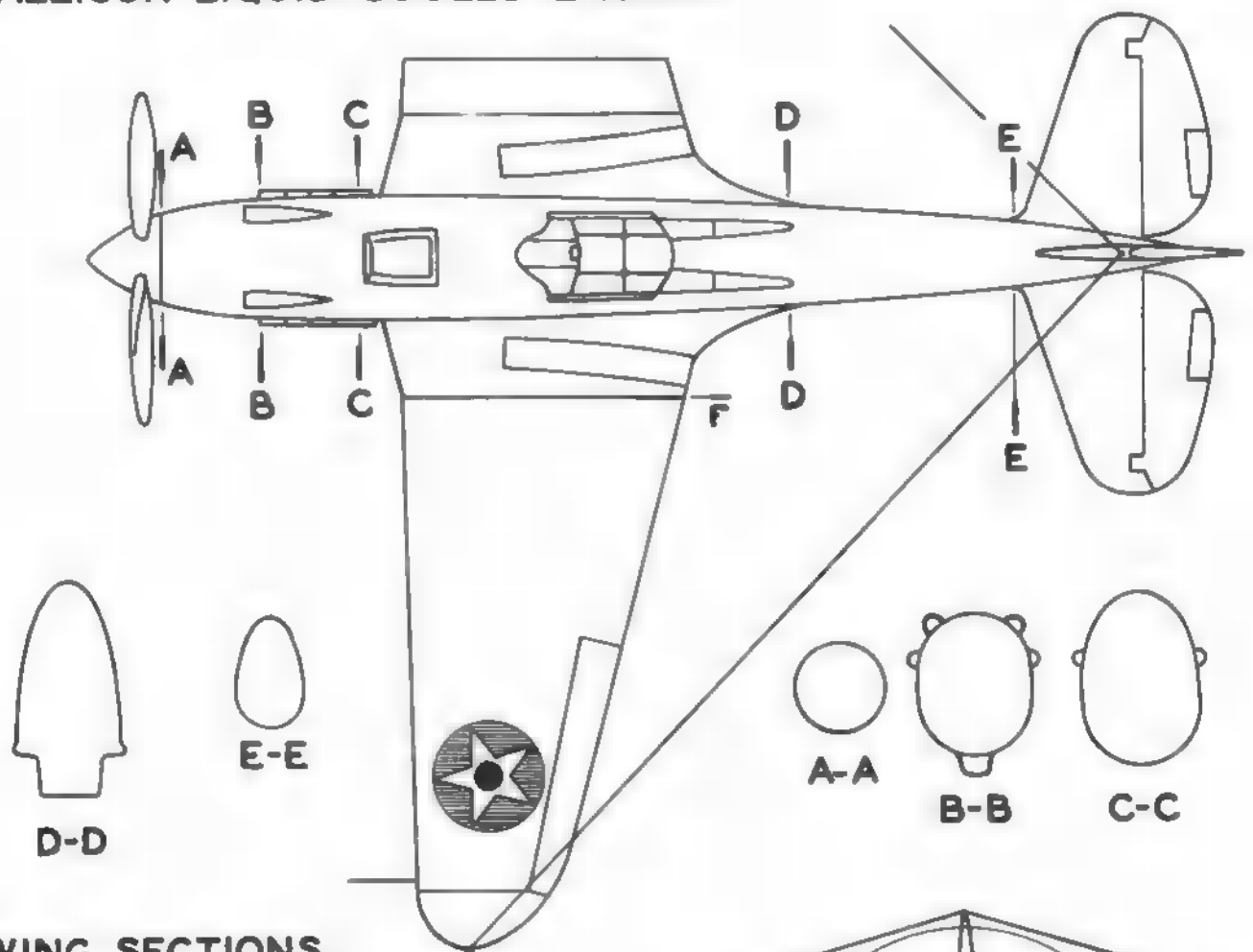
RECEIVED AND FORWARDED BY THE
 DIRECTOR OF THE BUREAU OF THE
 NATIONAL ARCHIVES

Scale

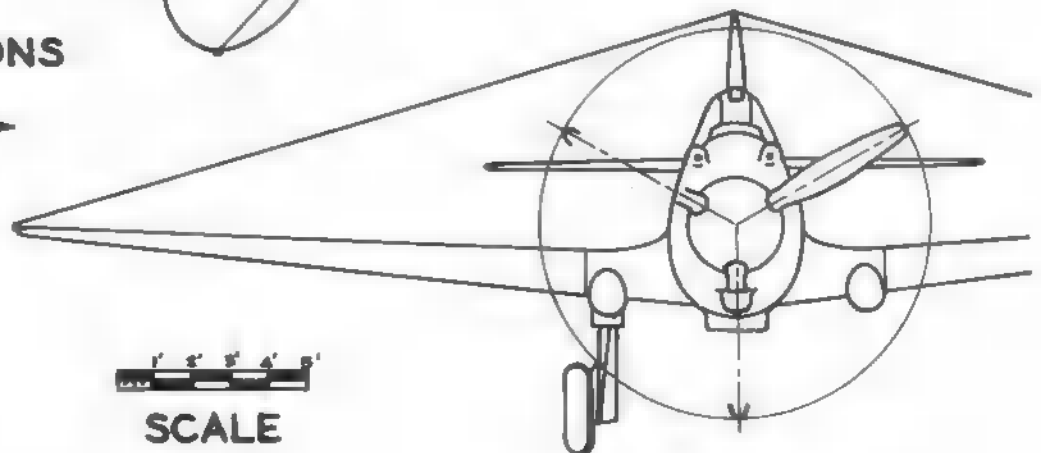
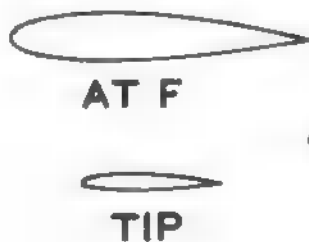
CURTISS XP-40

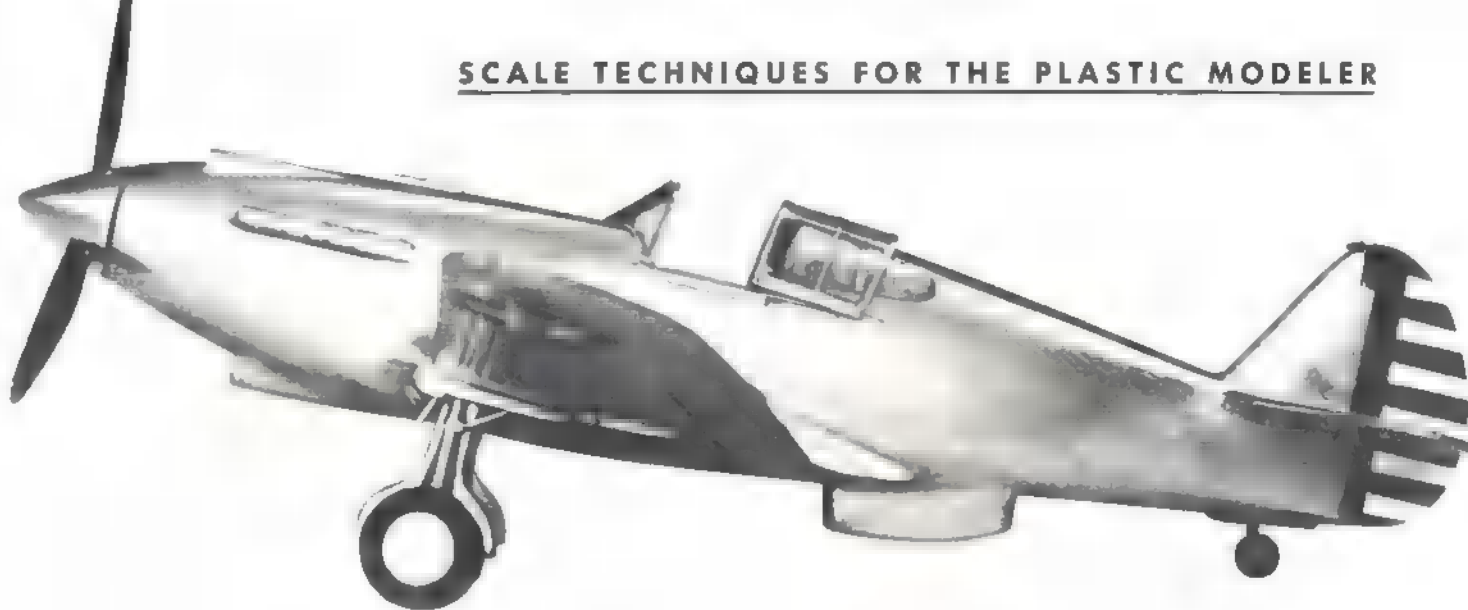


ALLISON LIQUID-COOLED ENGINE



WING SECTIONS





Curtiss XP-40

This model is an appropriate adaptation of a P-36 kit, done just as Curtiss adapted their P-36 to become the great P-40 Warhawk.

DR. FRANK L. MITCHELL

THE Curtiss P-40 was probably the most controversial, yet widely used, U. S. Army Air Force aircraft in World War II. It was sworn by, and sworn at, but it served when nothing else was available, and held the line until newer aircraft became available. It served throughout the war and in all theaters. It was used by many countries in many roles, most of which it was not designed to perform.

The P-40 came about as a result of a desire by the USAAF to utilize the then-new Allison liquid-cooled in-line engine. In an effort to acquire such a machine quickly, Curtiss was authorized in July 1937 to modify the tenth production P-36A to take an Allison V-1710-19 engine. This engine offered 1,160 hp for take-off and 1,000 hp at 10,000 ft. This aircraft first flew in October, 1938 as the Curtiss Hawk, Model 81. It was successful in a U. S. Army Pursuit Contest, at Wright Field, and brought to Curtiss the largest production order ever placed up to that time: 524 aircraft, for a total amount approaching \$13,000,000.

It seems appropriate, therefore, to add to your model collection the progenitor of this famous fighter, the XP-40. This model can be built to either $\frac{1}{72}$ or $\frac{1}{48}$ scale, using the Monogram P-40B kit, or one of the P-36 kits now available from Monogram, Heller, Revell, or UPC. By using the P-36 kits, you can also have the satisfaction of knowing that you are producing the XP-40 in the same manner that Curtiss did. This article will mainly direct itself to the $\frac{1}{48}$ conversion, with notes covering the smaller model.

To begin, remove the large circular carburetor intake from the top of the fuselage halves. The XP-40 has a rectangular intake set farther back on the fuselage. This can be made as follows: After gluing in place the machine-gun fairings as supplied in the kit, measure $\frac{1}{4}$ " from the end of these fairings, and cut a rectangle $\frac{1}{8} \times \frac{5}{16}$ " in each

half. Glue a piece of styrene plastic on a paper card larger than the hole, to the inside of the fuselage half. This will form a base for the scoop to be added later.

Assemble the cockpit details and the fuselage halves as outlined in the kit, but leaving out the exhausts. Using a jeweler's saw, make cuts as shown to eliminate the large radiator. At the same time, remove the long fairing from the center of the bottom wing half. Using plastic sheet, or pieces of an old kit, glue a base for the putty to the inside of the nose section and across the space made in the lower wing. Now assemble the wings as described, but do not add the landing gear, and attach them to the fuselage.

Use putty to fill in the large spaces, and after drying, sand and file these to a smooth flowing shape.

Carefully saw off the bottom portion of the landing gear housing and save these small pieces. Fill in the small side-door openings in the wing. Again using putty, form an extension of the forward wing fillet from the landing-gear housing to a point $\frac{3}{8}$ " ahead of the leading edge of the wing.

The XP-40 had large landing-gear fairings which can be duplicated by cutting them out of plastic sheet, card stock or using fairings from a Grumman Hellcat, which have merely to be squared off on their low-

Continued on page 50

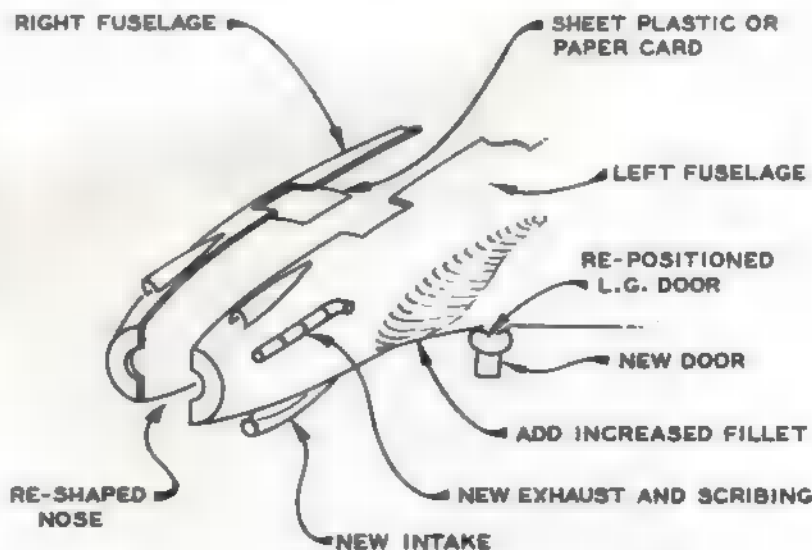


FIG. 1

La Jollita

C/L Goodyear racing event requires realism, speed, and well-practiced pit stops. Here's ■ consistent, rugged winner.

JAMES A. KLOTH

NOW that Rat Racing has become so refined as to require engines, fuels and techniques as expensive and exotic as the Speed events, fewer contestants are willing to face the costs and risks involved. More and more are turning to the Goodyear, or Scale Racing, event which has been around ■ the local level for a number of years. The local rules required only a little tailoring to adapt them to an acceptable AMA-sanctioned event. The "Scale" requirement also seems to fit into the current trend toward more realistic models.

Biggest drawback seems to ■ the lack of kits or published designs. Cal Smith did a series of designs ■ number of years back, but the structures were on the heavy side. Bill Netzeband, and others, contributed a few more designs, but enough time has passed to make them difficult to track down. Howard Mottin developed the Falcon, which is just about the only recent design. Entries in the event at the past King Orange Internationals were all Falcons, with the exception of one Bonzo built from rough drawings which I worked up for a friend.

This sameness of model ■ a shame for an event which could provide so much color. The old full-size Goodyear rules, now Formula I, are restrictive enough to keep the size of the different designs very similar. This means that differences in shape provide little competitive advantage, which also applies to the models. The modeler ■ choose what appears most pleasing to his eye without giving away any competitive edge. This should provide a good variety of designs at a contest. Apparently, few modelers have the talent to draw ■ one, or are not willing to do all that work.

My interest in Pylon Racing dates back to

the pre-war Cleveland National Air Races. This ■ produced a file full of information which has been gathering dust over the years. On digging through the books, pictures, magazines, etc., one plane seemed to keep popping up. The La Jollita seemed to have just those features which would make a good control-line model, and was ■ of the more attractive designs. I began scaling up a small 3-view.

With the outline taking shape, the problem turned to incorporating the appropriate and best ideas learned from past struggles with Rat Racers. FAI Team Racers and the old Thompson Trophy Racers, while a member of the Gulfhawks Model Airplane Club of St. Petersburg, Fla. The almost antique O.S. Max 15 II Glow engine had done a pretty good job in my last Thompson model. It was dependable, easily tuned, light, and produced a good power on a mild blend of racing fuel. The Veco pressure fitting was still in place and ■ pressure fuel system always seemed to give the steadiest ■ Rat Racing. The Veco T23B fuel tank was easily converted ■ pressure and equipped with ■ Don's Fast Fill unit. That completed the power unit.

The wing blank ■ glued up from sheets of $\frac{3}{8}$ " balsa with the short length of $\frac{3}{8} \times \frac{1}{2}$ " motor-mount stock acting as a bellcrank mount and stub spar. (Epoxy is used for all of the joints.) The $\frac{3}{32}$ "-diameter dowel ■ epoxied ■ place, flush with the bottom surface of the outboard wing ■ absorb the frantic grabs at pit-stops. Carve, plane and sand the wing to ■ flat-bottomed airfoil shape, using the glue line as the high point. The tips ■ just rounded. Epoxy the $\frac{1}{2}$ -ounce tip weight into ■ pocket dug into the bottom surface, and add ■ scrap of nylon

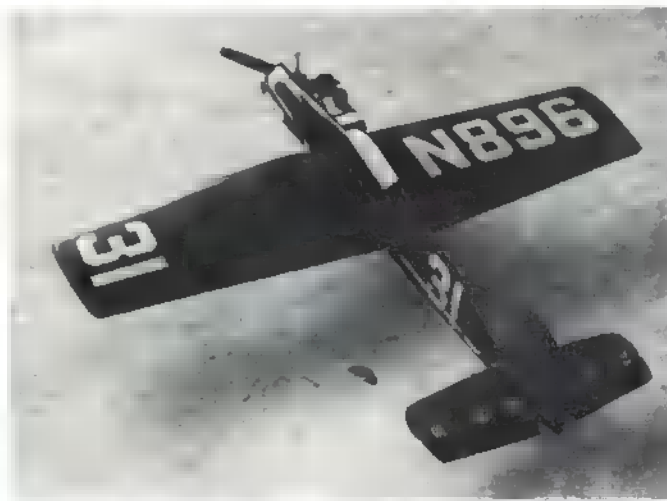
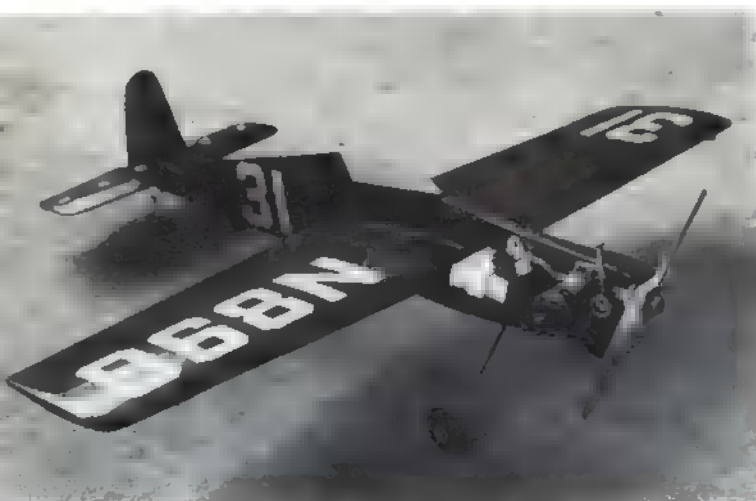
over it to assure its staying in place. Cut the slot for, and install, the $\frac{1}{16}$ " plywood leadout guide.

The fuselage is glued up from $\frac{3}{8}$ "-thick balsa also. Adjust the cut-outs for the $\frac{3}{8} \times \frac{1}{2}$ " motor mounts to fit the engine you have chosen. The $\frac{1}{8} \times \frac{3}{8}$ " spruce center strip is ■ added feature stolen from the Top Kick A-1 towliner design. This adds to the stiffness of the fuselage and does much to correct a weakness inherent in profile type designs. Everything should be pinned to a flat building board, which is protected by a sheet of wax paper or Saran Wrap while the epoxy sets up, insuring a straight fuselage. Cut out and glue in place the $\frac{1}{16}$ " plywood doublers. Fit your engine in place, locate and install the blind-nuts for engine and tank mounting. Glue on the $\frac{1}{8} \times \frac{3}{8}$ " spruce tail-skid mount and taper the tail end ■ shown.

Cut the tail surfaces, except the vertical fin, out of $\frac{3}{16}$ "-thick balsa. Glue the elevators to the $\frac{1}{8} \times \frac{1}{4}$ " spruce spar and add a $\frac{1}{16} \times \frac{1}{4}$ " balsa strip to build the spar up to the correct thickness. The fin is cut from softer $\frac{1}{4}$ "-thick balsa, with the grain running from front to back. Sand the $\frac{3}{16}$ "-thick parts to shape. The airfoil section of the stabilizer should be flat bottomed. The vertical fin is shaped after assembling to the fuselage.

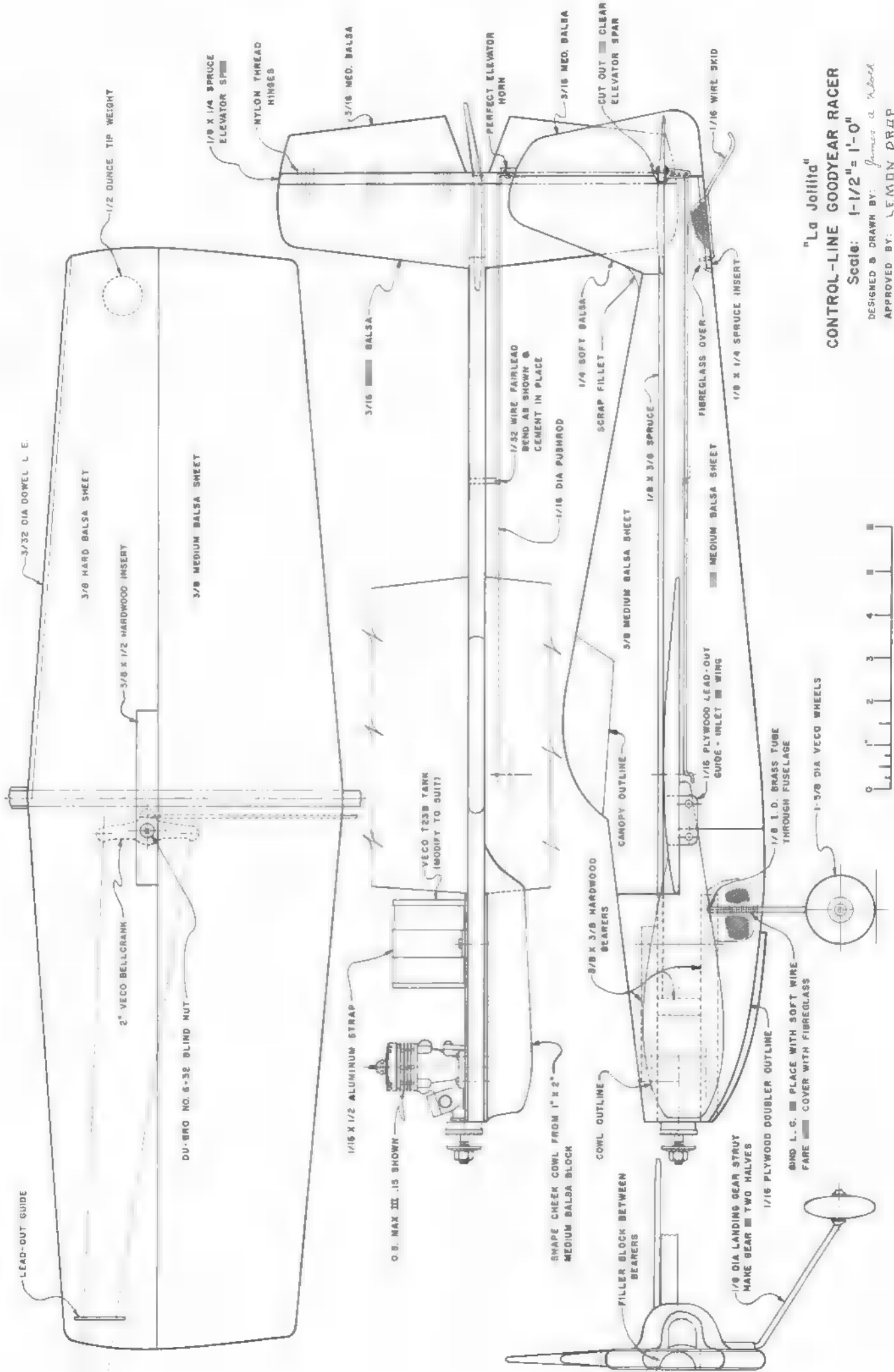
Fit the wing to the cut-out in the fuselage, fill in any gaps with scrap balsa, and epoxy in place after alignment is correct. Mount the stab to the fuselage, again taking care to assure proper alignment. Mount the fin and rudder with the elevator spar fitted through the cut-out in the rudder. Use strips of masking tape, top and bottom, to hold

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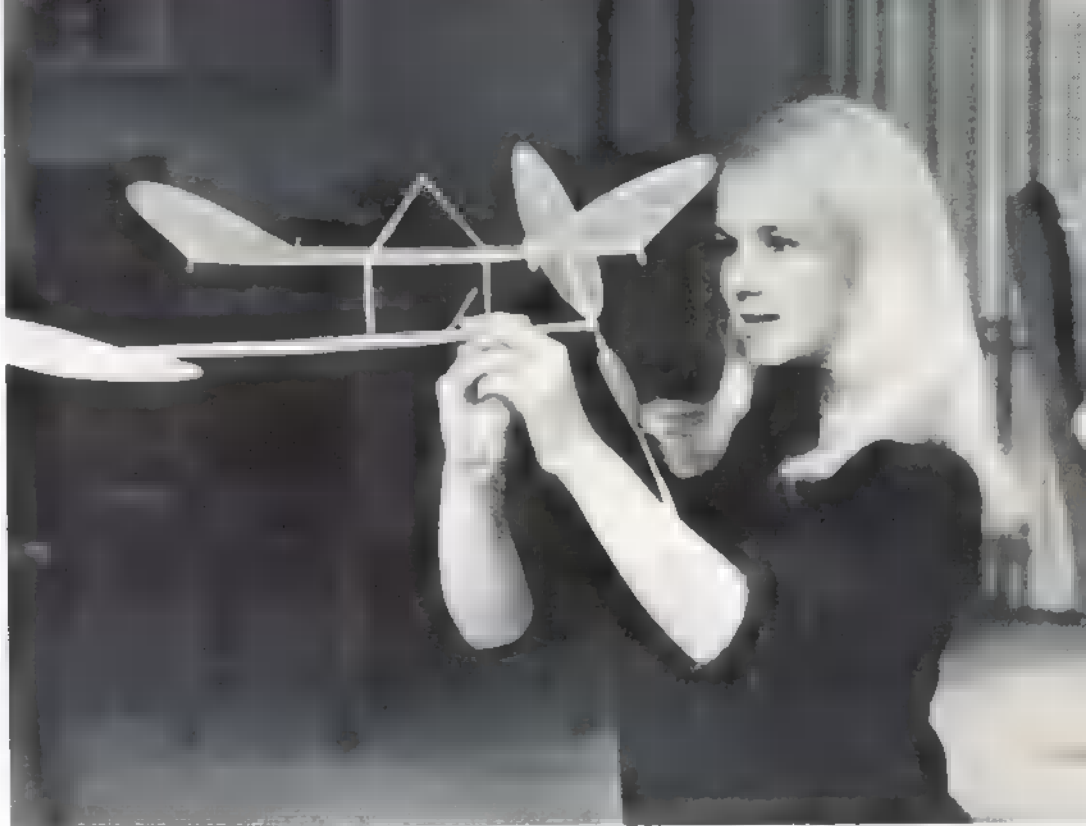
Fifteen-powered Goodyear racing event is exciting to watch or fly in, but it is not ■ wild free-for-all like Rat Racing. Only gimmluck here is convenient fast-fill tank with pressure system.

Smoothly finished model with epoxy paint is about as fuel-proof as it can be. In racing, model gets rough handling and wild fuels. Consistent performance will often beat faster models.



"La Jollita"
CONTROL-LINE GOODYEAR RACER
 Scale: 1-1/2" = 1'-0"
 DESIGNED & DRAWN BY: James A. North
 APPROVED BY: LEMON DRIP

Winner of '68 Nats Paper Stick event with over-15-minute flight, and then winner of microfilm Stick with 23-minutes-plus flight, is Linda Randolph. She holds four National records. Fellows, if you can't beat 'em, join 'em.



Feminine modelers
can be challenging
competitors
at the flying site
—and winners too.

Skirts Flying Minis

ROSALIE VANZANT

BE she blond, brunette ■ redhead, the typical feminine modeler got interested in the hobby-sport for one reason—a man! Invariably, a husband, boy friend, father or brother pointed the way to their initial efforts to build and fly.

Some of the feminine flyers, like Mrs. Norm (Barbara) Drazy, Lafayette, Ind., were born into the hobby. As she explains it, "My father (Walt Leonhardt) has flown ever since I can remember, ■ sooner or later it had to happen." Others, like Mrs. Joe (Betty) Stream, Long Beach, married into the ranks. She says, "Joe has been a mod-

eler since the age of ten, so when I married him, I married the hobby, too."

For some the initiation was rougher than for others. Mrs. Bill (Ann) Gieskieng, Denver, found out about the devotion of modelers to models quickly and decisively. Says Ann, "My most frustrating moment in modeling ■■ before I ever entered the hobby. Bill deserted me ■ our honeymoon ■■ to the 1964 FAI team finals at Winfield, Kans. Seeing what a thrill modeling ■■ to him, I had to try it myself to see what all the excitement ■■ about, and since then my frustration has been transformed into my avocation." Ann is now secretary of the Magnificent Mountain Men, and is the treasurer of the National Free Flight Society.

Ann Gieskieng, the suddenly initiated bride, scooped ■ the 1967 Rocky Mountain Regional Championship in FAI Power. In May, Mrs. Clyde (Marlene) Goodenough, Magna, Utah, came in second in C-Gas ■ Grand Junction, Colo., and in sunny California there ■ Miss Debbie Hannon, who copped the Junior National Championship in Navy Carrier at the 1967 Nats and first place in Open Carrier II ■ the 1968 Cal Western.

Quite ■ number of feminine competitors have made the boys and men take notice. Miss Martha Krogen, a native of Colombia, South America, and now ■ resident of Santa Ana, Calif., beat out about ■ fellows to win ■ first place trophy at the San Valeers annual in June.

Miss Cathy Monts, Wichita, Kans., earned first place and high time glider award ■ the 1968 Nats. On the east coast, Miss Dawn Cosmillo has wowed 'em with her precision aerobatics, having won first in the junior division at the 1965 Nats. Miss Linda Randolph from Ohio, the daughter of an Air

Force pilot, took first in junior paper stick ■ the 1968 Nats, setting four national records. Miss Cheryl Weisenbach, also from Ohio (Cleveland) has placed in a number of contests, including the Nats, with her Fokker Triplane. She has also flown and won in A-1 and hand-launch glider.

Mrs. Barbara Drazy, who says she was born into modeling, began putting up winning flights in control-line speed and stunt back when her name was Leonhardt. Norm ■ one of her closest competitors, sometimes he won, sometimes she did. They were married in 1966, and Norm is attending Purdue University, where they are active with the Cloud Jockeys.

Some girls just enter the contest game,



Chicago Nats entrant Cheryl Weisenbach has been modeling since six years old. Here, she processes 820-powered Fokker Triplane.



Denver hobby-shop operator Norma Kelly has commercial pilot's license. Good flyer and builder, she's never crashed an R/C.



Dawn Cosmillo is an avid contestant. She won Junior National Championship in Precision Aerobatics at '65 Nats with this stunter. Flies many events and even designed her own C L jet speed model.



Ann Gleskieng got into modeling because her husband took her to the 1964 FAI Team Trials on their honeymoon. She is now secretary of Magnificent Mountain Men club and treasurer of NFFS.

some are challenged to compete, and after a win retire on their laurels. Mrs. John (Evelyn) Lorence of Monmouth, Oreg., went to Sacramento with the Willamette Modelers to compete in the old-time cabin event. She won by two seconds over an all male field, then retired on her record. "When both my husband and son are flying in contests," she says, "I'm often kept busy just supplying food, drinks and repair parts."

Others enjoy the sport and social aspects of the hobby. Mrs. George (Maxine) Wwillamcy, Tucson, Ariz., claims she is the only flying grandmother in or near Tucson, likes "being with other modelers and helping and being helped."

The satisfactions of helping others loom big with many. Mrs. Myrtle Coad, Hayward, Calif., was once a top-notch competitor (she was a member of the winning Oakland Cloud Dusters' team at the Nats at

Olathe). "Mom" Coad has continued through the years to promote modeling on the west coast, as executive secretary of the Western Associated Modelers. She has maintained the multitudinous W.A.M. contest records and has boosted the local club contests which have attracted and held many young flyers in the hobby, including a number of girls.

"We always have at least 15 or 20 gals flying during the season," she says. "In the junior division we usually have about half as many girls as boys. It is truly a satisfaction," she adds, "helping youngsters get started in something that I know will always stay with them."

Another active booster is Mrs. Bob Vinson, Costa Mesa, Calif., mother of Cathy Vinson, who with her father is a member of the Sky Hoppers. Cathy has graduated from being just a "chaser" to being an occasional contest winner, thrilled when she wins and always trying.

The Vinsons have launched several of their neighborhood boys into modeling during the last few years by turning their garage into a giant workroom and setting up a bench where half-a-dozen kids could work in the evening. The building and talk

were lively for this sub-club which called itself "Robert's Rats." They are all regular junior members of the Sky Hoppers now.

"We feel that other adult modelers should be encouraged to show an interest in the youngsters in their own neighborhoods," says Mrs. Vinson. "Often they just need a few words of interest and encouragement (and occasionally transportation) to become full-fledged flyers."

Miss Helen Ann Cox, Tucson, who also got interested through watching her father's modeling activities, has been flying in the Cholla Choppers contests and has had several wins in Rat Race.

A few like Mrs. John (Norma) Kelly, Denver, have contested and won, still fly some

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Gwen McClure's most thrilling moment was her first Split-S. She likes to hear her husband say "That was a good landing."



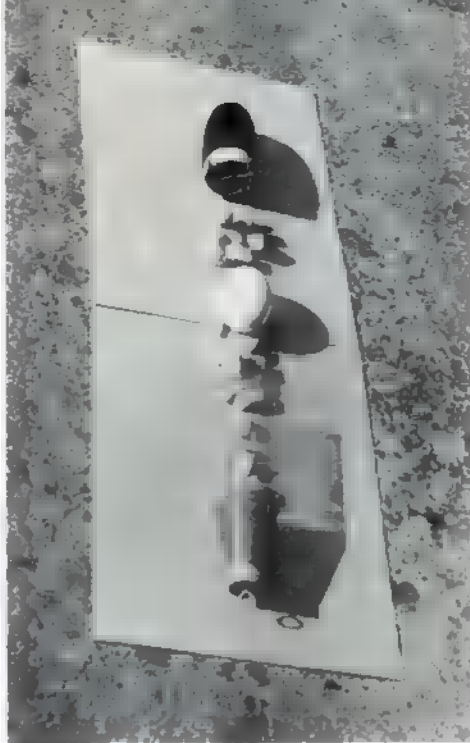
At San Valer's Annual contest last June Martha Kroger beat out the fellows in towline event with well-decorated model.



Flying a Harbinger, Cathy Monts won first place in Nordic A2, and the High Time award in glider at the 1968 Nationals.



The factors of launch acceleration, reliable parachute release, and soft landing are all vital to success in egg-lofting event.



Egg is protected by blocks of sponge rubber and rubber bands. Parachute in top of booster is tied to both booster and cargo sections.



Author hooks up igniter to fire the rocket at a contest. High-drag nose slows the model after burn-out to help parachute deploy.

ParaLoft

For egg-lofting event, rocket carries a raw egg for highest, longest flight. Scramble it — and you lose!

ANDREW ELLIOTT

THE ParaLoft may be described as the "Great Compromise" of model rocketry. It is both Egg Loft and Parachute Duration model. The design is a compromise between performance, reliability, and ease of building, yet it comes out near the top of all three aspects. A great composite, it is pooling of the better ideas in models and methods. In addition, the basic body-fin planform is adaptable to almost any combination of engine and payload, making it a sort of universal booster.

Ideas leading to the ParaLoft began when the last NAR rulebook came up with a new event called "Egg Lofting." Since then, Egg Loft has really caught on in the WAMARVA (Washington, Maryland, Virginia) area, and the event has been held in almost every contest since, including the Nationals. NARAM-10 (see AAM January 1969).

An amazing variety of design has appeared, ranging from a 5' monster to a small, light rocket with a payload section shaped like the egg itself. After flying in this event several times, it was noted that clustered rockets, i.e. those with more than one engine per stage, have a nasty habit of lifting off without all the engines firing and arcing into that hard egg-hating ground. Thus, a single-engined model was decided on. After

seeing huge F-class rockets weathercock into the wind, still under power, the "E" engine was chosen along with the BT-50 body tube and the design made only as stable as necessary.

Still, after some beautiful upward flights, my original model would reach apogee, then streamline in, then first. That was very bad for the finish, besides disqualifying me for the event. I therefore elected to add a little drag and adopt the external shock-mount now in use. This leaves a smooth bore inside the body tube, presenting no obstacles which the parachute might get caught or tangled, and guarantees reliable ejection. With the chute ejection problem solved, a new nose cone and engine mount were all that were needed to convert the Egg Loft into a good Chute Duration model, hence the name. A 24" chute may be easily packed into the BT-50 body and deployment is assured.

Before beginning, note that the following describes the construction of the ParaLoft in its Egg-Lofting configuration. Modifications for the P/D model follow. Also the center of pressure of the Egg Loft is 14.3" from the tip of the nose; the duration model's is 9.4" from its nose tip.

Body: Working from the inside out, it is easiest to start building with the engine mount. Carve or drill a 1/2"-diameter hole in a BT-50 block, coat the hole with white glue and glue the block in, 3/16" up from end of a 9" piece of BT-50 body tube. Cut six 3/2" strips of 1/32 x 1/8" hard balsa and glue them lengthwise in the tube as shown. Put a small dab of glue on each of the six rearward ends to stop the masking tape on the engine from catching there, when installed.

The body tube was covered with MonoKote (the sticky type), but a could also be

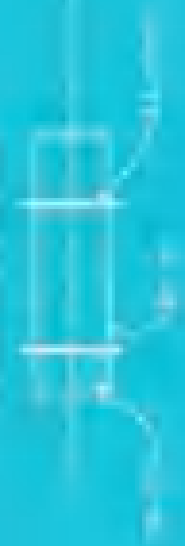
doped if the builder prefers. Just remember to glue the fins on before painting. The MonoKote is not as expensive as it seems — one 26 x 36" piece will cover quite a few rockets. If you choose the MonoKote, cut a 9 1/8 x 3 3/16" piece, then cut three 1/8" slits, 2" long, 1/16", 1 1/16", and 2 3/8" from either of the long edges. Peel off the backing, then lay one edge lengthwise along the tube; it should overlap 1/16" at both ends. Smooth the MonoKote evenly around the body. Try to get rid of all the bubbles, then shrink with a dry iron or hot 100-watt light bulb. Trim off the excess material with a sharp knife or razor blade.

Fins: Cut the fins from 1/16" stock and sand to the section shown. Dust and rub all fins very lightly with talc, then prime them with two unsanded coats of 30% thinned clear dope. Add one more coat only around the edges, then sand the fins with 600 wet-or-dry. If you intend to make several ParaLofts, it pays to make a fin template out of heavy cardboard or light plastic. Reinforce the root corner of the leading edge of one fin as shown. Apply at least three coats of Pactra Balsa Fillercoat, sanding between coats with 400 paper. Bevel one end of a 3/4" launch lug, glue it on a non-reinforced fin in the position shown on the plans and check its alignment. The grain now should be filled and the fins ready for your choice of colored dope. If it is not, apply further coats of Fillercoat.

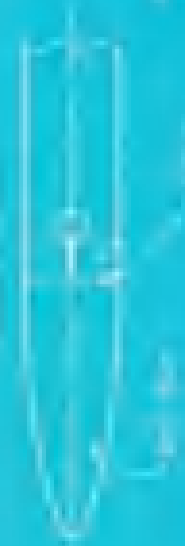
Sand after the first coat of colored dope with 400 paper, then add the final coat. Rubbing compound and gloss wax may be applied now if desired. Sand the root edges with medium sandpaper, being certain that the edges are straight, then glue the fins to the body tube in the slots in the MonoKote. Make sure that the joints are strong.

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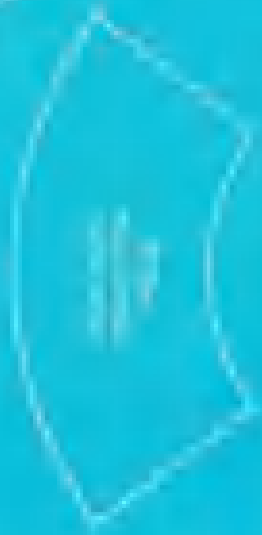
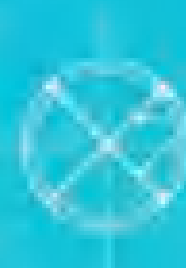
Front Elevation



Side Elevation



Back Elevation



Front Elevation

Side Elevation

Back Elevation

Top Elevation



Architectural drawing of a house showing multiple elevations and a cross-section.

Architectural drawing of a house showing multiple elevations and a cross-section.

Exact-scale model of New York Airways commuter liner, the De Havilland Twin Otter, flies like a Sr. Falcon according to builder Robin Lehman. It is also a safe steady flyer — either engine alone, including climbing with, and turning into, live engine! Makes realistic STOL takeoffs.



CONDUCTED BY HOWARD McENTEE

Technical Notes

Real shorty link: It's often a real squeeze to hook a throttle to the linkage due to short distance from firewall to the arm, and even tougher when you have to avoid metal-to-metal joints. Bob Penko (Kirtland Hardware & Hobby Shop, 9183 Rt. 306, Kirtland, Ohio 44094) shows his way in accompanying sketch. An R/C Craft Nylink is cut off just to left of the solid center web, and left portion discarded. The web is drilled to form a new thread for the end of a DuBro TC25 "coupler." Drill hole undersize, then force rod end in and use it to make a new thread. Now cut off the back end of the coupler, also the threaded end, as indicated. You'll end up with a very compact link, which prevents a metal-to-metal joint. If the throttle pushrod is $\frac{1}{32}$ " music wire, you could drill into the threaded end of the coupler (or use the original metal end of the Nylink) to make the unit even shorter. However, you will have about $\frac{3}{16}$ " range of adjustment.

We've had some notes in a past issue from

— $\frac{1}{4}$ -Midget pylon racing, which his local group has found very interesting. Just received are latest — and final, Bob claims! — changes in their rules, which now call for $2\frac{1}{4}$ " minimum fuselage width, and a minimum weight specification of $2\frac{1}{2}$ lb.

A sticky situation: Ever install a strip aileron bearing like we show, use epoxy to bind it in place — or to reinforce the center section of the wing — and find your linkage glued up solid? Nick Lavandier (2604 2nd North, Seattle, Wash. 98109) has. His simple solution is to seal the ends of the rod either with wax (you can melt on a few drops with a candle and a match) or with Vaseline. This keeps the wax out of the bearing, and is easy to remove when the job is done; even if you don't remove the sealing material completely, no harm will be done.

Holding P.C. boards: To keep etching solution off your fingers, and allow boards to be safely laid flat on your bench, try the method suggested by Doryn Johnson (Rt. 1, Box 5, Alpine, Calif. 91810). He slips two or three of the little red clips that are 5-

and-10c gliders in each board, which makes them easy to handle. The clips will hold board thicknesses from $\frac{1}{16}$ to $\frac{1}{8}$ ".

Protect those fingertips: After a lengthy session of attaching sheeting to a wing framework, fingers tend to have permanent dents in the ends from pushing in pins. Of course, you can buy round-headed pins, which alleviate this problem. But like a true modeler, Loren Pratt of the Tri-Valley RCC simply makes round heads from those little dabs of epoxy resin you always have left over, after mixing a batch.

The Editor of MARCS Sparks (Nelson Wareham, 144 Proudfit St., Madison, Wis. 53715) was so taken with the idea that he attached one of the pins to each copy of his April issue. You simply dip the head of a straight pin in the epoxy and twist it a bit to gather a little ball, then stick the pins in a piece of scrap balsa and let them hang head down till the epoxy is hard. Voila! No more sore "pin fingers."

Handy hints: Ed Gerhardt suggests use of stainless-steel leader wire (sold for fisher-

An editorial 'Many of these modelers operate high-speed boats which can be totally demolished by interference.'

WE have heard a few comments — both pro and con — on the possibilities of operating boats in the 72-76 MHz R/C spots. This is now prohibited. The FCC rules limit such operation to model planes only. Since many modelers (both plane and boat types) may not understand all the angles, let's look into the matter.

Far as we know, no real effort has been made before this to legalize boat operation on 72. But now a petition has been sent to the FCC (by W. C. Young, 2516 Oakwood Dr., Bakersfield, Calif.) requesting legalization of R/C boat operation on our high band. As is usual in such cases, the FCC has

requested comments from interested parties, in this case including the AMA. The Young petition has several main points: 1) The R/C boatmen have the same problems that beset plane flyers in that there is serious interference from CB phone operators, particularly those with 100-MW handie-talkies right at the boat running areas. 2) There are large numbers of model boatmen — 23 clubs in California alone, averaging 30 members each. Many of these modelers operate high-speed boats (some of which weigh around 1 lbs., can travel up to 60 mph, and can be totally demolished by interference, with possibility of considerable danger, and loss to the boat owner). 3) Many boatmen are also R/C plane flyers. Those who wish to operate their planes on the "safer" 72-MHz spots must invest several hundred dollars additional for a complete outfit in 27 MHz for their boats. 4) Approximately 15% of boat (and R/C car) operators are already using 72 MHz illegally, and Young feels that if the FCC allowed R/C boat operation in 72, there would be far less "bootleg" operation.

The campaign of the AMA for 72-76-MHz R/C spots was based primarily upon two angles — the danger to life and property from otherwise properly equipped and flown planes



Is it the sun in his eyes, that howling 60's scream, or the ever-present danger of a broken propeller blade, which ——— George O'Gar to win so convincingly? That's a dangerous way to hold a model! Young flyers are challenging the experts in pattern events.



Easily one of the most attractive pusher-engined designs is this Lear Fli by Wayne Wainwright. Smoothly contoured plane has hand-rubbed acrylic-butylate finish. Lear Jet-shaped nose and a Sun Fil wing explain derivation of name. It is a good stunter too.

men) for many small wire parts in models. It comes in sizes from .008 to .020, available from Sears Roebuck among other sources. Ed also suggests cutting little $\frac{1}{16}$ " squares from broken nylon prop-blade tips. Drill $\frac{1}{16}$ " holes in them before you cut from the blade, and these pieces will be found a tight push fit on $\frac{1}{16}$ " wire, to use as retainers. . . . Ed Sweeney has found that Thermogrip Hot Melt Glue (sold with suitable electric "gun" by Sears, Wards and many other outlets) will stick tightly to MonoKote. The heat used to melt the glue causes no problems. The glue is not completely fuelproof, but it makes fine fillets. Is rather hard to sand. Ed has built an entire plane with this glue, says it went together very rapidly. It should not be used in exposed areas, due to sanding difficulty, or in areas of heavy stress—mounting firewalls and engine bearers, for example (always use epoxy here). . . . Ed mentions seeing a plane displayed at booth of Carl Goldberg (Toledo, '69) which had a nylon control horn attached to the tail of a trike LG Skylark 56, as neat way to prevent damage to rudder in rough landings.

Grassroots

"Big Ben" progress: About once a year

we have given a progress report herein of a really tremendous plane—both in size and in complexity—being built by Ben Tarnofsky (942 Grou St., Montreal 379, Quebec, Canada). Our May 1968 issue had the last report, with a photo that gives one a good idea of the real size of this craft. Previously we have called it "The Monster," but as it ——— completion, it becomes more and more attractive, so the official name is now "Big Ben." Since ——— last photo, Ben has modified the 22" wing to include ailerons. The craft will carry CRC digital apparatus. An all-types-of-planes exhibition by three Montreal model clubs resulted in a real spurt to get the craft presentable for public view. Unfortunately, the motor wasn't far enough along to install, but a dummy cowl illustrates the neat nose lines.

Tony Grish has sent Ben a 24"-dia. prop. The spinner is 3" dia., custom-made for this plane. The 9" wheels have spun aluminum caps. Main LG is of $\frac{1}{2}$ "-thick hard aluminum, held to fuselage with seven nylon screws. Wheels have turned wood hubs, to fit aircraft (tail wheel, we assume) inner tubes. The nose gear is a real work of art; it pivots on a $\frac{1}{4}$ " steel strut and two steel

springs absorb shock. A separate servo will steer the nose wheel, this servo linked electrically to the separate rudder servo.

Ben had his heart set on a twin-opposed engine for this plane, finally had to build it himself. Already several parts are now partially machined. It has 5.3-cu.-in. displacement, and can be arranged for either alternate simultaneous firing (we fear alternate firing would give extreme vibration—simul firing, however, would allow almost perfect engine balance). Each cylinder has its own separate crankcase chamber, and the shaft turns on ball bearings. The engine is mostly of aluminum, except for mechanite cylinder sleeves, and the crankshaft.

If readers who haven't seen past reports on this project think Ben is a visionary who does no practical modeling, we must state that he is very well known in free flight, has been on the Canadian World Championship FF Team. A very active builder and flyer, it's apparent he is taking his time on Big Ben. It may yet fly in 1969!

Docile twin: Modelers in the N.Y. area may have met Robin Lehman, an English R/Cer who spent some months in the States last year, and did quite a bit of flying with

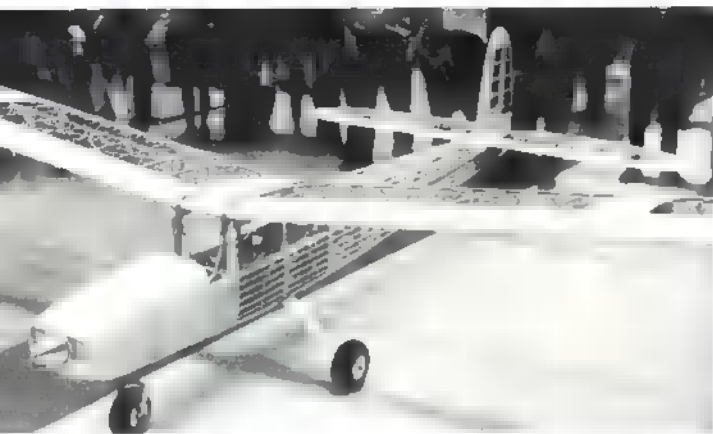
that were "shot down" by 27-MHz interference, and the contributions of model aviation to education and training in the aero and electronic sciences. We feel there ——— be little argument with either claim. Most of us have seen, or had, interference-caused crashes. And many youngsters and young men have gone on from model aviation to careers in the aeronautical branches of the military services and industry. As noted by AMA Exec. Director John Worth to another modeler who had questioned the prohibition of 72 MHz for R/C boats, the AMA counsel felt it would do us little good to base our campaign upon hobby or recreational angles—for the Commission would surely point out that the 27-MHz spots would serve these needs. John also noted that unless the boatmen could prove the same sort of case for their branch of the hobby as the R/C plane flyers did (number of participants, danger from crashing planes, educational advantages) it ——— unlikely the FCC would agree to open up 72 to boats.

We have heard R/C plane men comment that since they (meaning plane clubs, plane equipment manufacturers and individuals) put up the very considerable sum of money required to follow through our successful campaign that

lasted for several years, they can't see why the boat boys should get a free ride. Since there was much publicity while the campaign was going on, surely the boatmen knew about it. Did they offer to help? Frankly we don't know, nor do we know if they were asked to do so. Of course many R/C clubs include members who operate both R/C planes and boats; some clubs have large and very active boating groups.

Since there are some AMA members who are both R/C plane and boat operators—and some AMA-chartered clubs that have considerable boating membership—the Academy is currently exploring the possibility of opening 72 to model boat R/C, through the AMA Frequency Committee. There is a certain danger here, though; our legal counsel points out that if we push too strongly for R/C boat operation on 72, it could jeopardize our use of these frequencies for R/C planes!

This is where the matter stands at this writing (early spring). There is now an official petition for 72-76-MHz R/C model boating (it has been stated publicly that there is considerable bootleg operation of this sort) and the AMA will soon send comments on the matter to the Commission following their request. We'll keep you posted.



Statistics on Big Ben so far: 1/4" hard aluminum main gear, 24" prop, 22 1/2" wing span, 9" diameter wheels. Will use home-made 5.3 cu. in. twin-cylinder engine. Model will need special license to fly.

Scale model of little-known Goodyear racer, the Bee Gee Baby Sportster, held by Tony Giovanetti. Real plane was designed by Granville brothers of Gee Bee, Thompson Trophy fame. Bob Granville on right. Some unsuccessful Goodyear designs of years ago might make fast Formula 1 models. Others will be attractive sport flyers, an interesting possibility.



the North Jersey RCC and other groups in the area. NJRCC Pres. Woody Woodman received a photo and description of a scale-twin which Robin has flown. He says it is docile as a St. Falcon to fly. It moves in virtually scale speed in the air.

It is a De Havilland Twin Otter, spans in bit over 7' and weighs 11 1/4 lb. Flight on either engine is very good (type of engines fitted wasn't specified). Turns in either direction with either engine running are routine. The plane will climb with just one engine. This is a 100% scale copy of the STOL Otter, and apparently many of the full-size plane's characteristics have turned out to be "scale" too.

It is almost nonspinnable. With the stick pulled full back and the craft pointing up almost vertically, it still refuses to drop a wing. Robin has experience with other R/C twin-engined planes. For example, he has a Cessna 310, much more difficult to fly; it travels far faster than scale speed. His next project will be a Short Skyvan. This and other twin-engined planes will be tried, for he wonders if the Twin Otter might have turned out so well just by accident! Interested modelers can reach him at: The White House, Spaniards End, London N. W. 3, England.

That Baby Sportster: In the May '69 issue (page 36) we had some notes on a plane shown at a meeting of the Northern Conn. RCC last Fall. Unfortunately, we misread some of the information in the club paper of this group, and to set matters straight,

Editor Bernice Williams sent photo shown here. Builder Tony Giovanetti holds the plane in left; it's the original design (called the "Bee Gee Baby Sportster") intended for R/C pylon racing. The "Bee Gee" comes from initials of co-designer Bob Granville at right. Bob is son of one of the original Granville Brothers, builders of a line of racing planes in the 1930's. Photo was taken by J. P. Stakun of NCRCC.

Competition

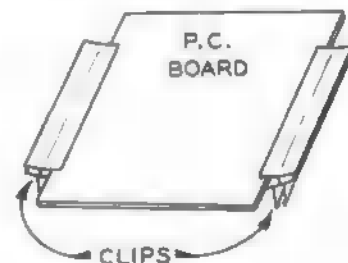
Certificates to all: Note from Russ Verbael (Assoc. Editor of the very professionally written, laid out and printed Trim Tab, club paper of the Pensacola, Fla., Aero-Modelers) tells us his group makes it a practice to give a certificate printed on parchment to all entrants to their meets. They feel such flyers deserve something to remind them of the meet, even if they fail in place. The certificates are eminently suitable for framing. This is the group that sponsors the "Fiesta of Five Flags" R/C meet, which appears to be growing in popularity each year. Russ is also Secretary of the P.A.M.

RCIA Show-Meet: All paths will lead to Atlanta, Ga., on Sept. 13-14, for first large R/C trade-show in Southeast. The R/C Industry Assoc. has also settled on this date to hold its annual Masters Tournament in the same area. The show will be held at the Marriott Motor Hotel in downtown Atlanta. In addition to booth space for R/C manufacturers, the Cobb Country R/C Modelers, who will host the show, will set up "proxy booths" for manufacturers who

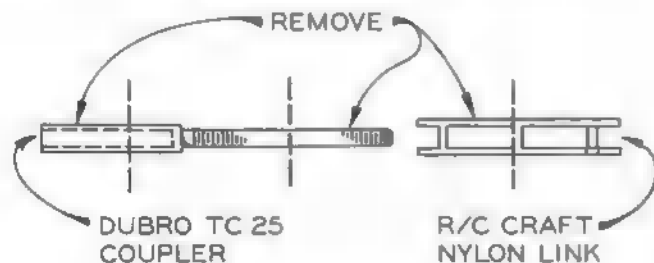
would like to show their wares but cannot attend. These booths will be manned by club members well-versed in R/C.

Heading this part of what sounds like a very busy weekend is Joel Harper (900 Piedmont Circle, NE, Marietta, Ga. 30060) of the CCRC. Booth reservations, and motel reservations, may be made through Joel. For the Masters Tournament, the top 30 R/C flyers in the country will be chosen by a point system based upon the actual place of the applicant in a meet, and the number of contestants in the Class C Expert event of that meet. Each entry in this class will score 100 points toward the total; then first place will gain 50% of these points toward qualification for the Masters, second place will get 30%, and third place will get 20%. Winning a large meet will rightfully gain a flyer more points than winning a small

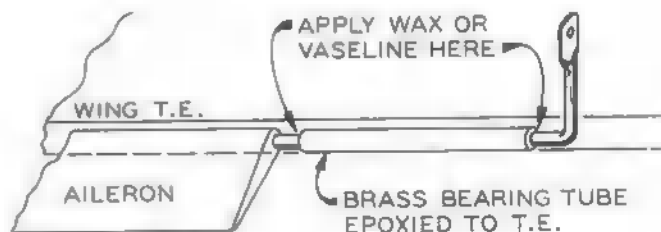
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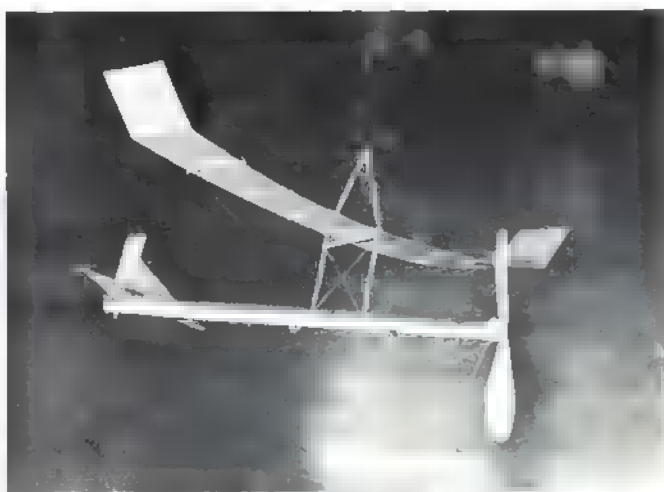
Doryn Johnson holds PC boards properly upside-down in etching solution with dime-store model's wing clips on each edge.



Bob Penko offers this solution to getting an adjustable link into the space between firewall and throttle arm. Shorten a split tube coupler, solder it to a 2/56 bolt, and thread the bolt into hole drilled in the solid center of the Nylon link. Cut off back of link. Adjustment range is 1/2" and overall length is about 1".



Have you ever glued your ailerons solid to the wing? Nick Lavandier uses vaseline to lubricate the bearing and prevent the epoxy from holding torque rod with bearing. Use lots of epoxy safely.



All photos by Gallagher

Gordon Gallagher's model is easily caught in flight at its slow pace. Essentially a big indoor stick job with tube fuselage, battery behind prop, underslung receiver, and actuator behind wing.



This model's great virtue was its higher flying speed which allowed better rudder control, but required too large a turning radius for the gym size. It is Jerry Grench's 5' 10" plane, weighing 12 oz.

Rubber-Powered R/C

Lightweight radio gear opens up a captivating new world.

HOWARD McENTEE

RUBBER-POWERED R/C! The Aeroguidance Society (Endicott, N. Y.), scheduled an indoor rubber meet last winter, then added an R/C event. Planes ranged from Don Harrington's relatively small 1½ pounder to Jerry Grench's huge 5' 10" job which weighed 12 lbs. Latter flew OK but was just too big for the flying space in the high school gym. "Revooh," the winner, designed and built by Jim Hoover, with a copy built by his teammate Myron Cary. A stretched-out cabin-type plane with lightly doped paper covering, it had Trexler wheels, and weighed only 3 lbs. The winning flight by Cary totaled 28 sec., but 3rd place Hoover put up a 65-second flight after the contest.

Rules called for ROG takeoff, straight flight, left turn, right turn, return to transmitter, spot landing. Air time also figured in total points. Revooh took 850 turns the rubber motor, flew fairly fast. Control response was quite good. Second-place winner Gordon Gallagher (D.D.S., Pleasant Court, Binghamton, N. Y.) who sent pix and results, flew a plane with hollow-stick fuselage, bamboo LG and dental-floss bracing.

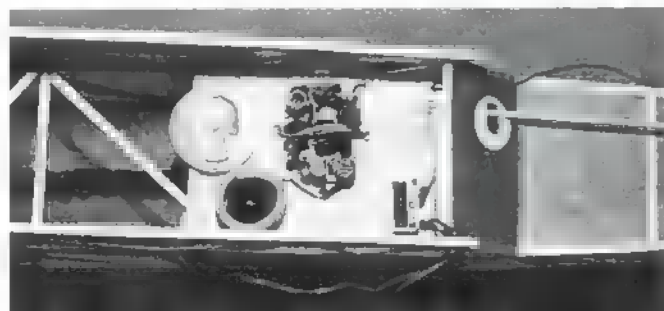
Quite slow, his plane had marginal control. The actuator couldn't quite handle the large rudder. His flight time was 39 sec.

Grench used an Airtrol receiver, others the tiny Albins. All actuators were built from tiny G.E. relays with 50-ohm coils. Batteries were silver oxide cells (Eveready S41 and S76, Mallory 312). Since Gordon had

just a "stick" model, all radio gear was external. Battery was just behind prop, receiver was slung under the wing L.E., and actuator was about at the center of the tube. There will be many more entries next winter. The meet will be all-R/C, and other motive power (probably electric drive) will be allowed.



Don Harrington's model is small cabin-type thing with built-up slow-turning prop. With additional practice, experience, and rubber power, it might have been the winner. Highly undercambered wing with exposed spar gives plenty of lift at very slow speeds.



Winner, Revooh, had Albin receiver, modified 50-ohm relay/actuator, tiny silver-oxide hearing aids. System most of plane's 3 oz. gross! Ship didn't weigh much!



Revooh, by Jim Hoover, is something like a miniature Wakefield job with long fuselage, lifting stab, under-side rudder for positive control, and fairly clean airframe for efficient flight.

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THE NEW MINI PLANES

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ADAMS AR BABY ACTUATOR

From Adams comes the Baby actuator. Results lower drain for over-all lighter weight. Plenty of torque for mini jobs, the AR has only 40 50 milliamps current drain on 2.4 to 3 volts, so it can be used with some of the smallest batteries for a tremendous saving in weight.

Uses the same frame and is the same size as the regular Baby, the secret of the weight saving is in current consumption. Weight is 17 grams.

No. 14K31—Adams AR Baby Actuator.....\$8.45
For the modelers who have regular Baby and want to convert to lower drain coil, it is available separately. Conversion is simple and takes only a few minutes with hand tools.

No. 14K32—Adams AR Coil only.....\$4.00

TWO NEW TWIN ACTUATORS

The Baby Actuator by Adams is now available as a Twin in either the regular or the new. The twin magnets provide approximately 2 1/2 to 3 times the torque of the single units increase weight only slightly. The regular and Baby weigh approximately 17 grams, while the Twins weigh 22 grams.

The regular Baby Twin has the most torque and pulls around 110 mah on 2.4 volts, while the AR version pulls 40 50 mah 2.4 to 3 v. The AR is designed for the Micro and Mini series of planes where weight is important and smaller batteries are used to keep overall weight as low as possible.

No. 14K58—Adams Baby Twin, regular coil.....\$10.95
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PROFILE R/C PLANS AVAILABLE

Full size plans for the Mini Profile R/C Planes are available now for the Fokker D-VIII and the Nieuport 17, and the Mini-ot—the Mini-ot is a profile version of the Bleriot. This spans 32 inches. The others average about 25 inches. Plans are by Chris Soenksen.

The Mini Planes were the hit of the Toledo R/C show. They are offset printed and are 17 x 22. include a "how to" sheet of information. Price includes FIRST-CLASS MAILING.

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No. 13K32—Nieuport 17 Profile Plans.....\$1.00

No. 13K291—Mini-ot Profile Plans.....\$1.00

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Until August 31 we will offer your choice of the plans FREE with the purchase of a Commander R/O Baby Pulse Package. Offer is limited—and you MUST ask for it.

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These are a must when you want to tame the Cox .010 or .020. Simply set to position for the desired RPM and you have a tame power plant that is just the ticket for the new mini scale and semi-scale planes. Be sure to order the correct one for your engine—not interchangeable.

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This is the first superhet receiver to produced by Ace R/C and it is a first in many respects: Small—measures only 1 1/4 x 1 1/4 x 1 1/4; Light-weight is about .9 ounce; Relayless—but double-ended (DE) with 1 amp transistors in output for hookup direct to dual coil actuators; Low voltage—works reliably at maximum range on just 2.4 volts; Versatile—works with most any transmitter of from 400 to 1400 hz; Pulses—exceptionally fast.

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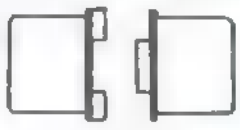


Rand Rack and Actuators and Packs are now manufactured by Ace R/C at Higginsville, Missouri. The changeover was made earlier, and production has been moved.

Herb Abrams will continue as the designer and consultant for the Rand manufacturing portion of Ace R/C, and this will assure you of new Rand items of quality and leadership in fields that you have come to expect.

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SERVO MECHANICS—Controlaire S-3 and S-4 and Kraft-Hayes KPS10. For tinkerer to make his own digital or analog servo. All are complete with motor, feedback pot, gears, shafts, output hardware, etc. S-3 and S-4 in easy to assemble kit form; KPS10 preassembled. Mechanicals only, no electronics. No. 14K17—S-3 \$9.98; No. 14K18—S-4 \$8.98; No. 14G55—KPS10 \$13.95.

LAHTI ANALOG SERVO ELECTRONICS—Complete kit of all electronics needed to make an excellent analog servo with highest resolution from S-3, S-4 or KPS10 mechanics. It with the AAM decoder for simple rudder only NON-FLAPPING control. No. 15G31—Lahti Analog electronics only kit, \$11.95.

MINI GG ACTUATOR PACKAGE

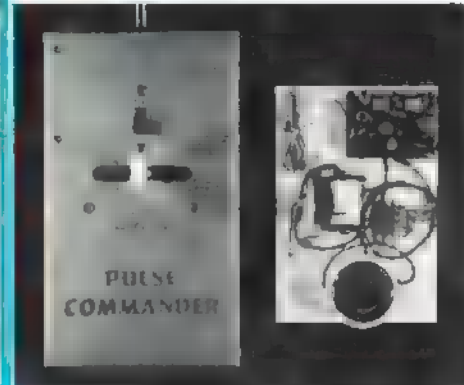
Don Sruhl designed this GG actuator for Rud- and Elevator for .010 to .049 ships, and we are proud to present a kit of all components required. Weight is approximately 10 grams and measures 2 x 1 1/2 x 1 3/8". Current drain is approximately 70 ma on 1.2 volts.

Kit contains low drain five pole motor used in digital servos, synthane base plate, hardware, including gears, etc., as well as simplified instructions to allow you to complete in less than 1 hour.

For use with relay receivers, or with the Ace AOSM kit with almost any relayless receiver one set of batteries for savings in weight.

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The Baby Pack is for the .010 and .020 jobs although it can be used with tame .049's. Pack has two GE 225 ma BHL nickel cadmium batteries and Baby Adams. With wiring harness switch, completely assembled.

The Standard uses the LV Single Adams for power for .049 .07 size. Is furnished with two 500 BHL nickel cadmiums. With switch harness, assembled.

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(Charging equipment not furnished.)

No. 10G15—Commander R/O Baby pack.....\$69.95
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Will charge nickel cadmium batteries—20 mils to 150 mils. Capable of charging up to 12 volt packs. Indexed dial simple chart for correct milliamp reading for charging different size battery packs. Completely isolated from AC line supply. An extra deluxe New transformer of highest quality. UL approved line cord. On-off switch. milliamp diode. Full instructions.

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Multitester designer for RC. This Multitester is distributed by Graupner for the European countries and is made especially for them in Japan. selected all others by Graupner a top RC meter. This gives an indication the quality and preciseness. This identical meter now is made for Ace R/C for distribution in the United States.

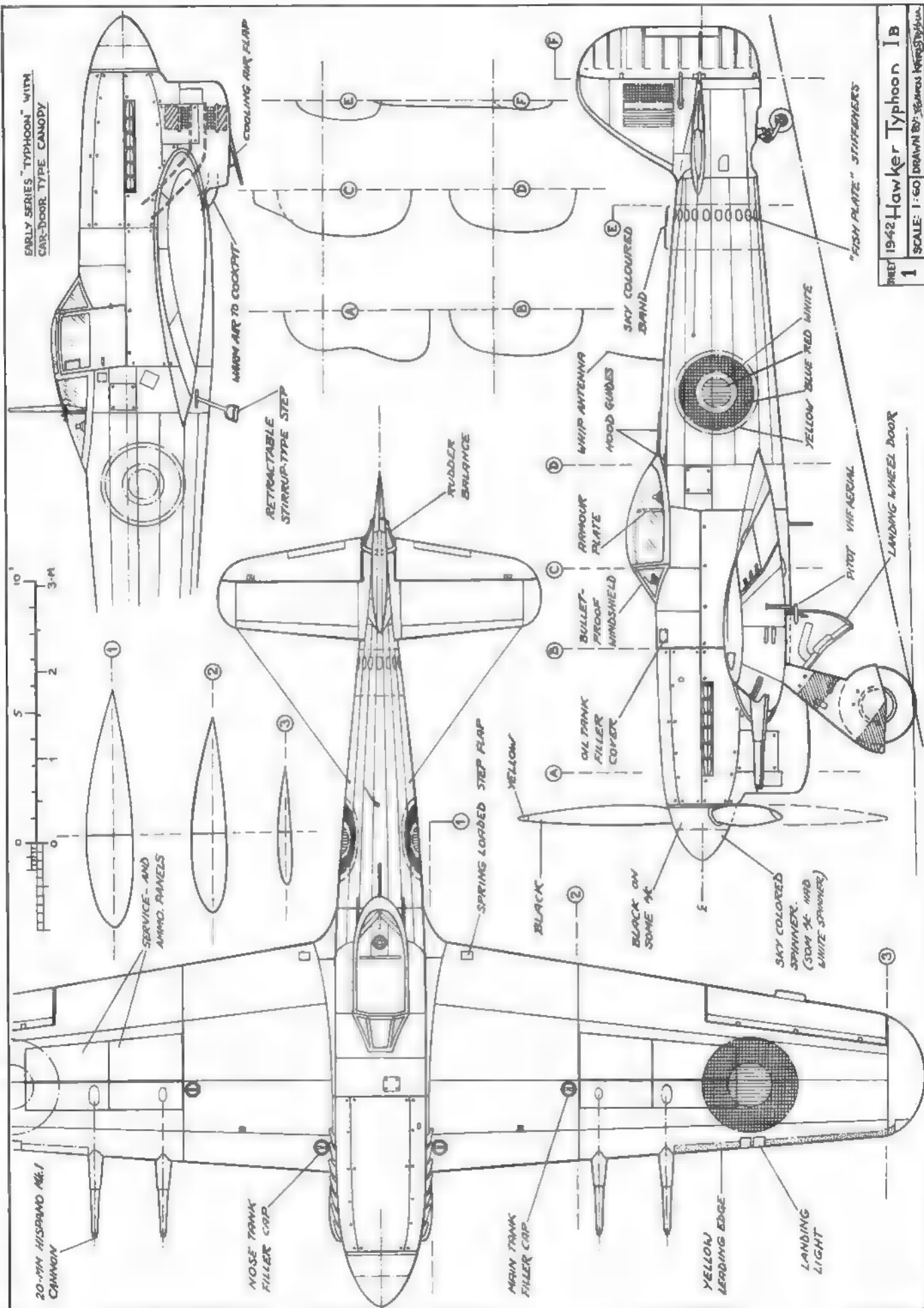
DC milliammeter ranges of 100 and 500 mA; volts 3.5, 7, 14, and 250 volts. Measures resistance in 2000 ohms and 200,000 ohms. 2,000 ohms per volt.

Handy pocket size. Measures 3 1/2 by 5 by 1 1/2 inches. Complete with test leads.

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1942 Hawker Typhoon IB
 SCALE: 1:60 DRAWN BY: SEANON HAWKSTYLUH
 SHEET 1

GETTING STARTED IN R/C

Model boats have special R/C requirements; steam, gas, and electric power each offer particular problems.

HOWARD McENTEE

THIS series, which has run about two years, has been aimed almost exclusively at the R/C model plane builder and experimenter. But letters from readers have reminded us that the plane boys don't have an exclusive on R/C: model boating via radio is growing at a rapid pace too.

Actually, of course, most of the monthly installments of *Getting Started* could apply in some ways to model boating—or to model cars or other R/C activity. Parts 7 and 15, in fact, are the only ones that are of primary interest to plane enthusiasts only. Since some of the back issues carrying this feature may be out of print, we suggest the boatmen obtain the "Getting Started in R/C" book (\$1.25, from the publishers of this magazine).

The license requirements for model boatmen are much the same as for planes—with one big exception. Only model planes may be operated with 72-76 MHz equipment. There is a move afoot to open this band to other R/C hobbyists, however, and the FCC may eventually allow it. Licensing was covered in Part 4 of the mag series (or Chap. 2 in the book).

There are basic differences between plane and boat R/C. For one thing, many boats (all except the real speedsters) are not too fast, thus they don't require the very rapid and precise multi-proportional control that

is almost universal in larger planes. There are fine bargains available in multi-reed apparatus today, much of which would be ideal for many boat uses. You can get complete reed systems (with all batteries and charger) that will handle five controls, for well under \$100! Not only are they low in cost, but reed systems are the most interference-resistant.

Parts placement in boats can be quite different than in planes. In the latter, for example, the servos are almost always grouped together under (or over) the wing. In boats this weight concentration near the center of gravity isn't so important; many R/C boats have the steering servo right next to the rudder post at the stern. Batteries and receiver can be shifted over a far wider range to achieve balance, than in planes.

Since boats are generally much heavier than planes, vibration from internal combustion engines may not be so severe—though it must still be considered. But many boats have electric drive—just about eliminating vibration completely. Electric drive can bring in its own special problems. The heavy drive-motor current produces considerable brush sparking, which may bother some receivers. Here, digital equipment would be more vulnerable (though it doesn't present an insurmountable problem by any means), and reeds would probably be least affected. Standard interference-reduction methods, as practiced on R/C servos (but possibly with heavier-duty components

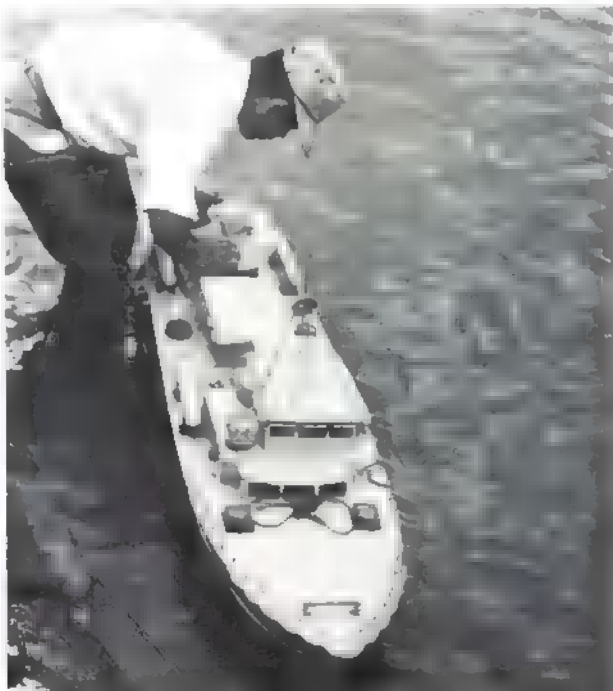
such as chokes), should clear this up.

Model boats bring up some special R/C requirements of their own. On a large sailboat, for example, a normal R/C servo might be adequate for moving the rudder, but such a servo probably couldn't handle the heavy sail loads. Special sail servos are required for another reason anyhow: standard (model plane) servos produce a total movement of perhaps $\frac{5}{8}$ to $\frac{3}{4}$ "—but large sails may need to be moved 8" or more! Model marine suppliers offer special sail servos, having the required power and range of movement. Some of these tie right into the receiver circuitry. Others may be switched for the desired action via a standard R/C servo linked to a toggle or other battery-power switch. On some boats a single servo is linked to two sails (mainsail and jib, for example), on others a separate servo winch handles each sail separately.

The larger and faster speedboats often require more power to move the rudder than standard plane servos will provide. Some boatmen have linked two servos "in parallel"; both are driven in the same direction from the same receiver circuit, and the two output arms are linked together to provide double power. And again, special high power boat servos are available from suppliers.

Model steamboats have a special hazard—the below-decks area is usually full of steam—that humidity is close to 100%. This

Continued on page 73



Generally, model boats have long useful life, so highly detailed, large-sized models are not uncommon. Japanese modeler prepares electric-started 50-cc powered PT.



Dr. Del Johnson poses with two Star Class sailboats—his and Frank Kelley's. Only three R/C channels are used in each: jib sheet, main sheet, and rudder. It's one of those rare, windless, useless days.

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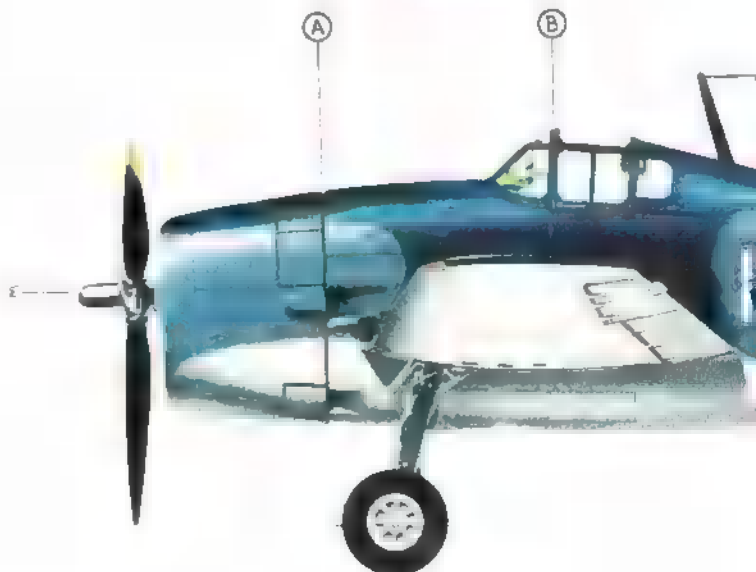
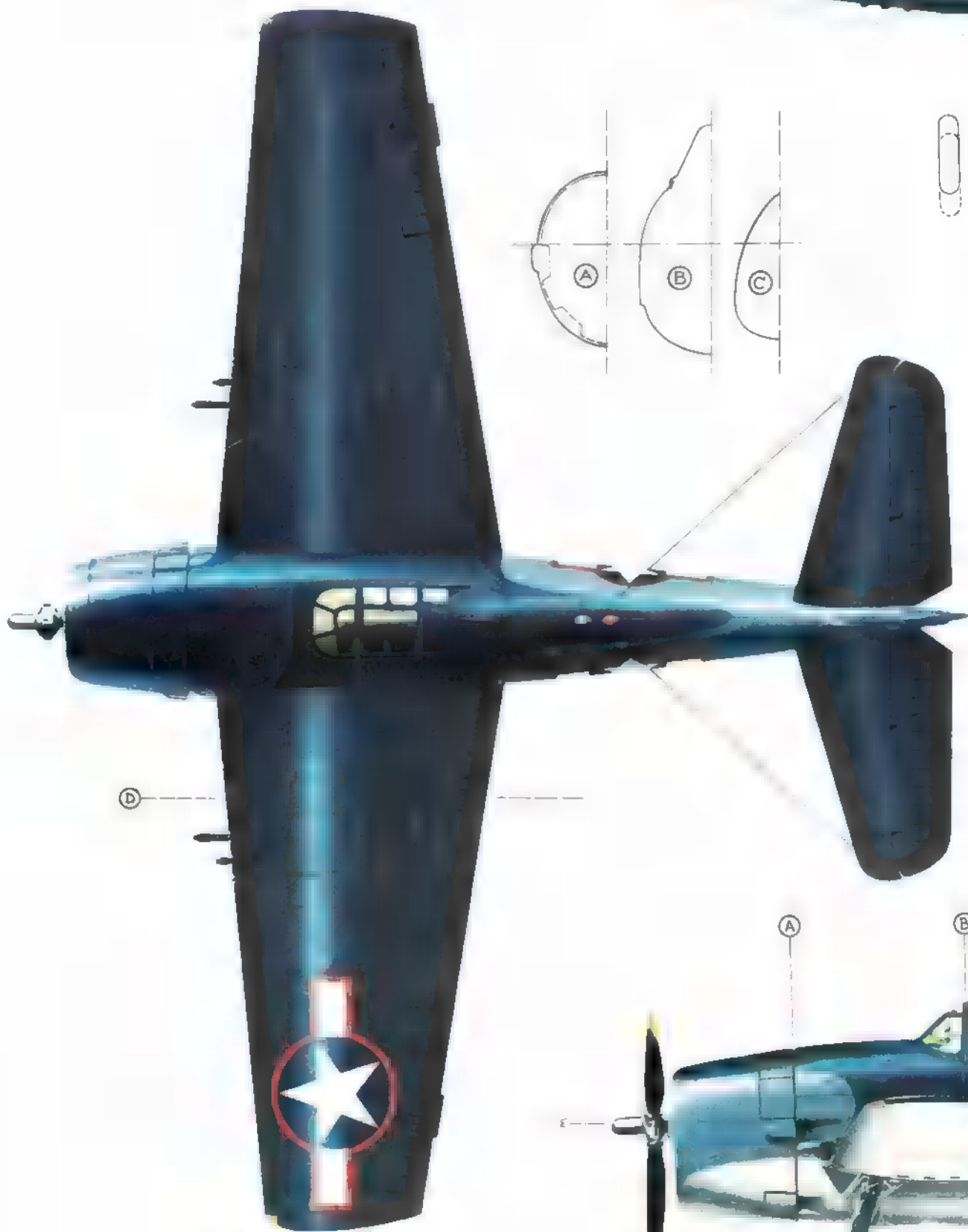
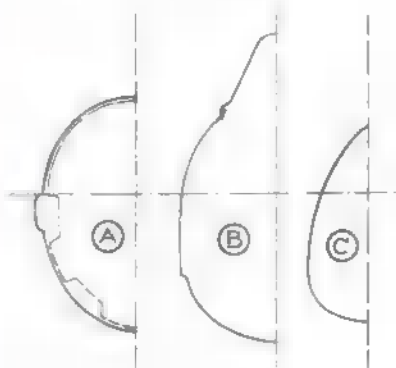
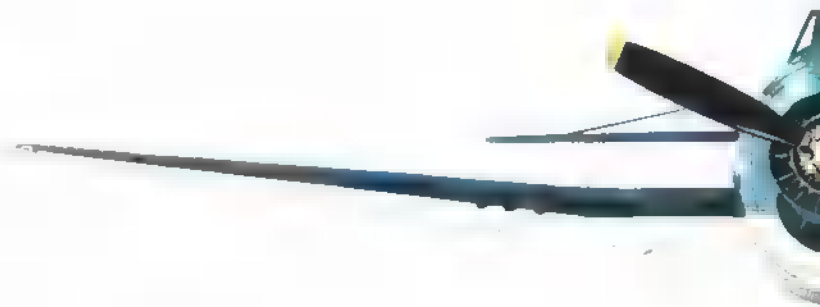
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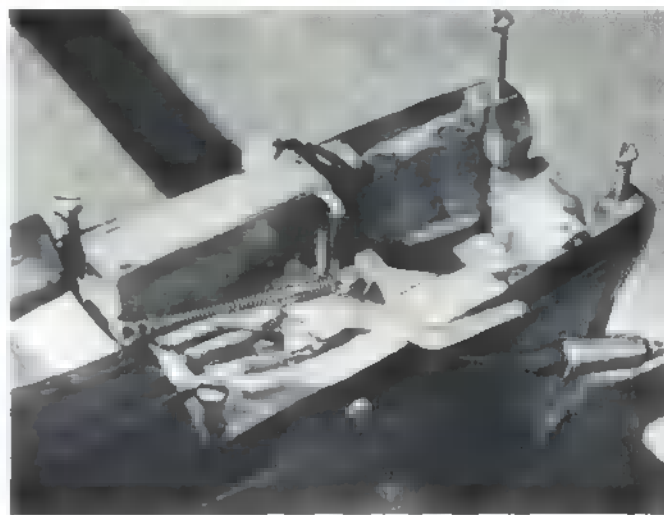
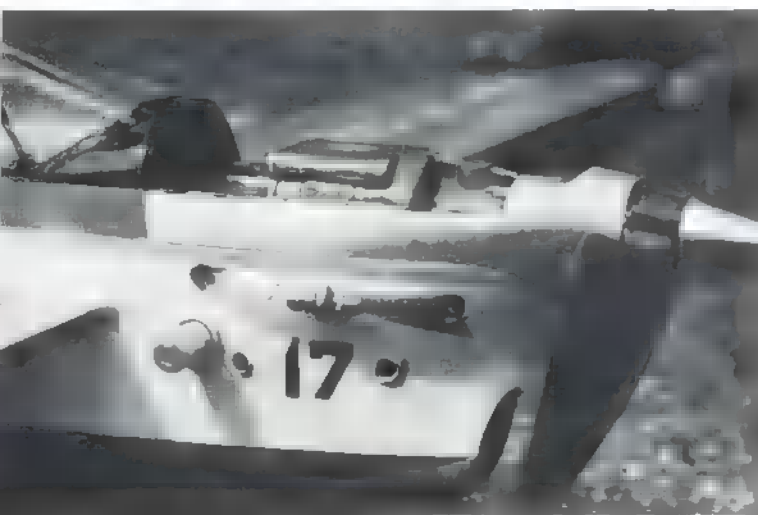
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GRUMMAN F6F-3 HELLCAT (1943)

Carrier-based fighter used in Pacific Theatre. 2,000-hp Pratt & Whitney. Top speed 376 mph at 17,300 feet. Range 1090 miles at 160 mph. Six .5 machine guns, plus two 1000-lb. bombs or six 5-in. rockets.





Unconventional team racer by Zoloterverch/Kobets has extremely wide propeller blades, fully enveloping pan front and shut-off re-set button. Deep-bellied fuselage is faired to almost envelope monowheel landing gear.

Nifty spring-loaded shut-off by Babichev/Krasnorutsky is tripped by pull from elevator horn. You can just see the semi-buried tube from elevator horn. Front of cowl is incorporated in pan.

Champions' Techniques

Much-modified engines with home-made gadgets and specialized fuel systems were used by all competitors at the Control-Line World Championships.

JOHN D. FRANKLIN

Neatest removable tailskid for team racers seen for many years, was the Dunkin/Wright (U.S.A.) team. Principle of operation is that the brass tube is buried in the model with a spring wire just breaking into the inside diameter, through a groove filed in one side of the tube. The 12 s.w.g. piano-wire tailskid is a push-fit into the brass tube, and also has a groove filed across one side for the brass tube slot to line up with, and the spring to fall into. This locks the tailskid in place. To remove, the skid is turned through 90 degrees to push the spring out of the slot, and then withdrawn.

Circular bellcranks are used by many con-

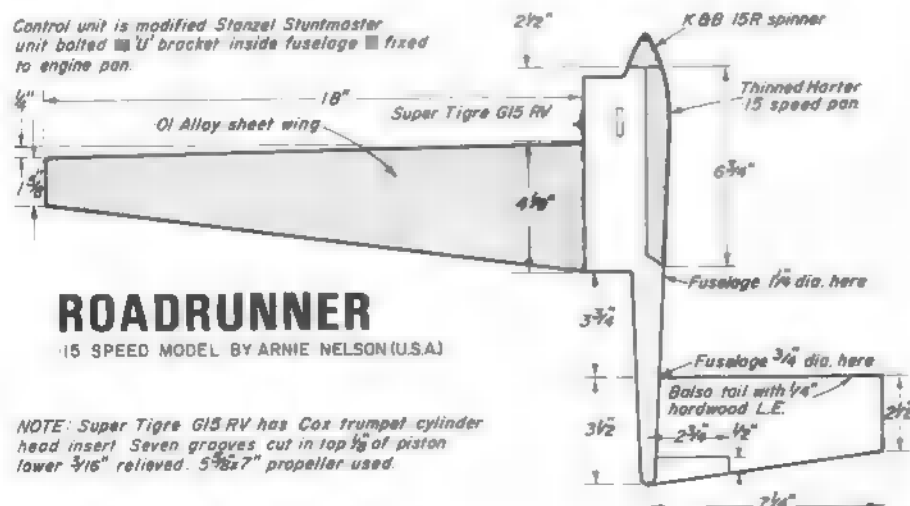
testants for neater installations and smoother control action. South Africans Holz/Menges used a brass Meccano Pulley Wheel No. 22A with the bushed center. This is 1" diameter; they drill the pushrod fixing hole $\frac{1}{16}$ " from the center, giving the gearing of a 2 $\frac{1}{2}$ " normal bellcrank. The flexible leadout wire is wrapped $1\frac{1}{2}$ times around the wheel and spot-soldered to anchor it. Apart from making a installation (only a 1"-diameter hole needed in wing center) the leadout can be run through narrow tubes buried in the wings, as the wheel does not create the backward forward movement as the leadouts as a conventional bellcrank.

The Russians Babichev/Krasnorutsky had two good ideas on their team racer. As well as having a cutout operated by the down

line for fast pit-stops this model had a pan that enveloped the rear exhaust motor front housing to form part of the front cowl. Their wheel is a home-made tire molding, that can't come off the hub due to a central retaining flange. The alloy hub is machined first and then inserted into a rubber injection molding die, so the two-part cold-setting rubber mix can be injected all around the hub. Using a very hard rubber they have an excellent wheel with a permanently fixed tire. (One can't afford the time to replace a tire in team race pit-stops.)

When a team-race engine is set for maximum economy, the fuel supply is often marginal for getting the model off the ground, and motors often cut for this reason just after release. Babichev/Krasnorutsky used a twin fuel supply to the venturi to overcome this problem. Their tank is normal, in that it has the normal overflow priming pipe, air vent and fuel tube to the needle valve. They fill through a spring-loaded valve on the side of the tank and use an extra fuel line from the filler valve body, outside the valve, to the rear of the ven-

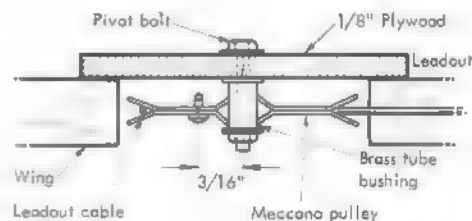
Control unit is modified Stanzel Stuntmaster unit bolted to U bracket inside fuselage fixed to engine pan.



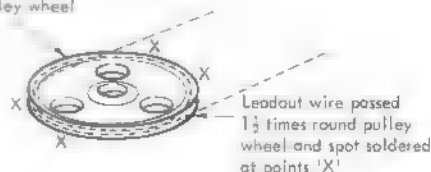
ROADRUNNER

15 SPEED MODEL BY ARNIE NELSON (U.S.A.)

NOTE: Super Tigre G15 RV has Cox trumpet cylinder head insert! Seven grooves cut in top $\frac{1}{16}$ " of piston lower $\frac{3}{16}$ " relieved. 5 $\frac{1}{2}$ "x7" propeller used.

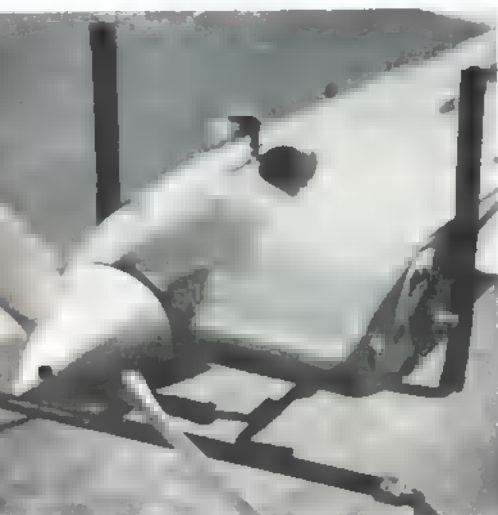


Meccano No. 22A pulley wheel



MECCANO CIRCULAR BELLCRANK

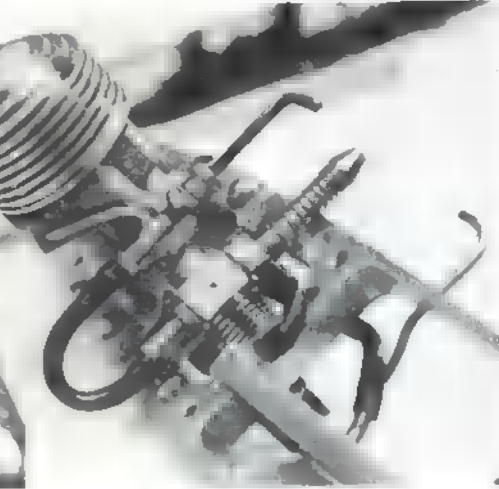
by N. Holz and B. Menges (South Africa)



Close up of Arni Nelson's T.W.A. "Road-runner." Fiberglass molded fuselage has small cooling duct. Note black-rubber fuel tube over dolly posts and thin cuffed-root propeller. Fiberglass fuselage at front of pipe helps keep pipe temperature uniform.



Rear-exhaust team race engine was hand-made by Boris Krasnorutsky. Note enveloping front end of aluminum pan.



Extra needle valve mounted on rear of Hasling brothers H. P. 15D meters amount of exhaust prime. Stockton/Jehlik thought this unnecessary when they saw it—but promptly flooded their H. P. 15D in final race.

turi. When they fill the tank they also fill (his length of tube, so for the first few seconds of the engine run, it is running on its normal fuel supply from the needle valve, and the amount contained in this tube, which is sucked into the rear of the venturi through a fixed-size jet. Their starts were very good and the run was noticeably rich for the first half lap with blue smoke streaming from the model.

The trend in speed models from nearly every nation was toward a "Pink Lady" style model. Few seem to be trying their own designs and the low-aspect ratio Stuppi types. The T.W.A. group were taking orders for their engine and several were given away at the meeting. No one knows what the M.V.V.S. pipe engine will look like, but if the current political situation allows development to continue, it should be very much influenced by the T.W.A. that Bill Wisniewski gave to Josef Sladky. The Hungarian Moki's were a lot slower than expected, and seem to have gone over the hill; they will have to work pretty hard to get them into the 160 mph region.

In team racing there seems to be very little between any of the makes of engine, and in the right hands, all of them would have turned in almost identical times. (We are not talking about standard engines, as nearly every engine used at these international meetings is modified in some way or another.) The long-awaited H.P. 15D

was flown by several contestants, but these were not production motors. These were all part of a large batch of prototypes made by the Austrian factory. We were given to understand that the 15 will not be in production for a long while yet—if ever! This is because the 60 R/C must take preference for commercial reasons and the 15 involves too much hard work. The 60, being larger, lends itself to normal automatic industrial processes much better, so eliminating hand-work and lowering costs. While the factory

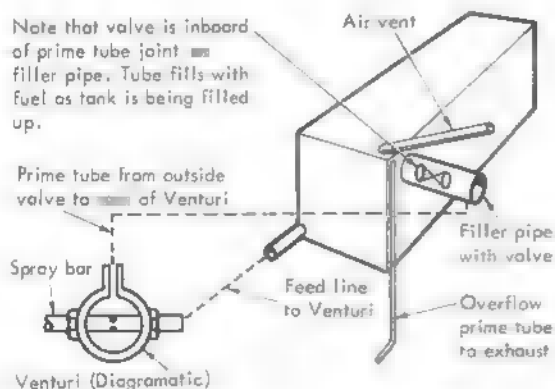
have 15 components in stock, they do not have all the parts required to make complete engines. Stockton/Jehlik's H.P. was basically stock except for the home-made Cox 049 engine's drum-valve fuel induction system.

The experienced Russian race team of Zolotoverch/Kobets had a most interesting model with a deep fuselage that com-

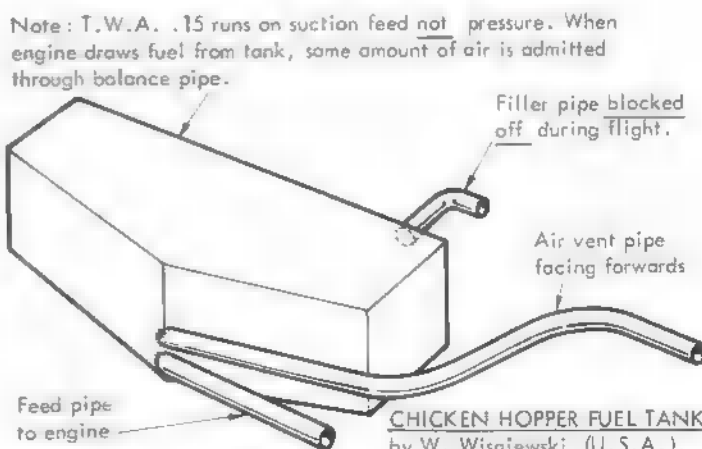
(Continued on page 52)



Neat fiberglass fuselage and M.V.V.S. "Team Race Special" 15 Diesel installation by Klemm of Czechoslovakia. Brass edging strips keep canopy in place. Doll's-head pilot meets rules but is not scale as rules intended.



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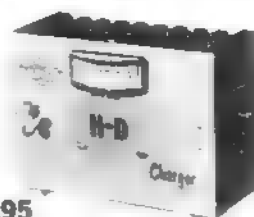
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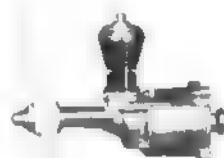


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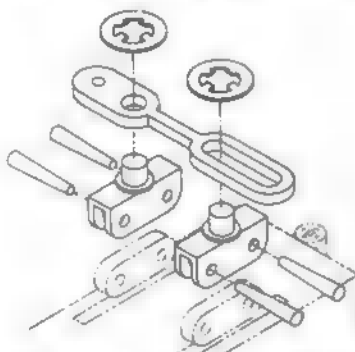
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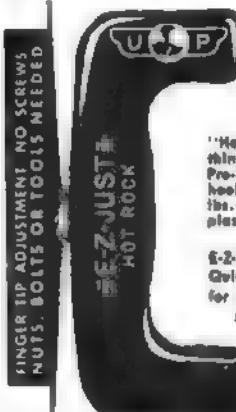
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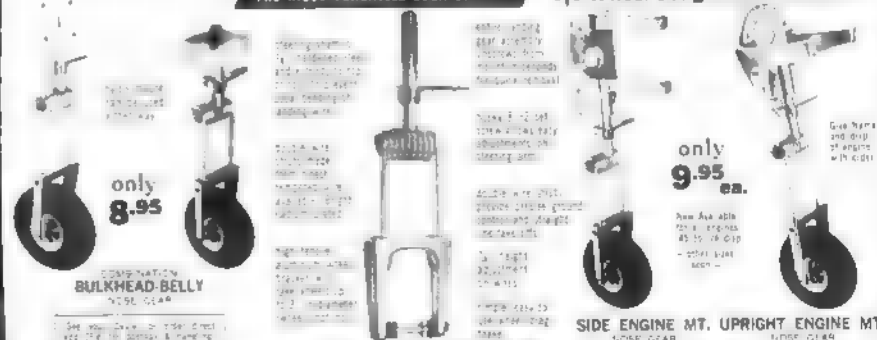
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A.M.A. NEWS



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First AMA Member Around Moon Receives Distinguished Service Award



AMA is proud of its member, USAF Col. Frank Borman, command pilot for last Christmas' Apollo VIII moon flight. As a small measure of AMA's esteem, he was presented with the AMA Distinguished Service Award in a ceremony at Washington, D.C., last May, attended by past presidents of AMA and current AMA President John Patton, who presented the plaque. In a letter written by Col. Borman upon returning to the

NASA Houston Manned Spacecraft Center, he said, "Thank you for sending me the plaque commemorating the successful Apollo VIII flight. This is a wonderful salute to my efforts as a voyager around the moon, and I am grateful to you for your thoughtfulness in providing me with a plaque of such beautiful workmanship. I am glad that I could distinguish the organization by being its first member to circle the moon."

In Washington last May for the AMA Distinguished Service Award presentation were (L to R) former AMA Presidents John Worth, D.C. (1963-Jan. 1964), current AMA executive director, and Al Lewis, N.Y. (1938); current AMA President John Patton, Md.; Col. Frank Borman, recipient; and former AMA Presidents Walt Good, Md. (1958-1960), Willis Brown, Md. (1936-1937), Maynard Hill, Md. (Feb. 1964-Dec. 1964), Howard Johnson, Calif. (1965-1966) and Frank Bushey, Conn. (1952).



FAI Control Line Scale

As time goes on it seems increasingly likely that Control Line Scale may be elevated to World Championship status, just as it seems probable that the RC Scale World Championship may be authorized for France in 1970 (and the host's offer may be expanded to include CL Scale). Such authorization, if granted, would come at the November meeting in Paris of the Federation Aeronautique Internationale (FAI) Committee for International Aero Modeling (CIAM). AMA is the U.S. representative of this worldwide body by authorization of the National Aeronautic Association.

Contingency plans have already been brought into play for use of National Contest results for RC Scale and CL Scale to determine U.S. teams for the possible 1970 World Championships. It has been the policy of AMA, established by the Executive Council, to field U.S. teams for all official FAI World Championships whenever possible.

The international FAI RC Scale rules have previously been published in these pages as well as in the 1969 AMA rule book, page 80. The first part of the already-available rules, sections numbered 6.1.1 through 6.1.11, are applicable equally to Radio Control Scale and Control Line Scale. These sections relate chiefly to the system of judging fidelity to scale and craftsmanship, proof of scale requirements and general contest conditions.

The rules which follow apply only to FAI Control Line Scale: they define how to judge the flight portion of a contest and enumerate special conditions required for models.

It is interesting to note that the CL flight judging is similar to RC judging in that the rules provide for giving maximum points for duplicating flight characteristics of the prototype. In this way, any given type of aircraft should not have an advantage over another.

The methods of final scoring for CL and RC are dissimilar. In CL, the points for fidelity to scale and craftsmanship are added to flight points for final scoring. In RC, the final scoring is done by a formula which

essentially, multiplies the flight score times the fidelity/craftsmanship score.

Use the rules below, together with sections 6.1.1 through 6.1.11, to make up the complete FAI Control Line Scale rules.

6.2 CONTROL LINE FLYING SCALE REGULATIONS

6.2.1 General Characteristics:

Maximum surface area: 150 dm² (2325 sq. in.)
Maximum weight. The weight of the complete model, less fuel, shall not exceed 5 kg (11 lbs.) except that a model of a prototype using more than one engine shall not exceed 7 kg (15 lbs., 6 oz.).

Maximum loading: 150 gr./dm² (49.14 oz. per sq. ft.)

Motive Power

a) Piston: the total swept volume of all motors shall not exceed 61 cm³ (3.61 in.) except that a model of a prototype using more than one engine, the total swept volume of the engines shall not exceed 20 cm³ (1.22 cu. in.).

b) Direct reaction motors (rockets excluded):
1. Maximum weight: bare reactor: 5 kg (11.02 oz.).

6.2.2 Control Mechanism: Before each flight the entire control mechanism, including control lines and attachments to the model and control handle, shall be subject to a pull test equal to 10 times the weight of the model, with a maximum of 35 kg (77.2 lbs.).

Control line length (center point of hand grip to vertical center of model) shall be less than 20 meters (49.2 ft.) or more than 20 meters (65.6 ft.), except in the case of models with wings of 2.5 m (1526 cu. in.) or less, then the lines may be 12 m (39.4 ft.) to 20 m (65.6 ft.).

6.2.3 Definition of an attempt: There is an attempt when:

a) the model fails to take off within the three minutes allowed the competitor
b) the competitor takes off, but fails to achieve an official flight
c) jettisoning occurs.

N.B. An attempt can be repeated at the judges discretion only when, for unforeseen reason outside the control of the competitor or organizers, the model fails to start.

6.2.4 Definition of an official flight: A flight is an official flight when the model has completed all laps or turns in the circle from point of take-off.

6.2.5 Number of flights: Each contestant shall have 2 attempts to complete each of his official flight programs.

6.2.6 Flying time: Competitors must be called at least 5 minutes before they are required to occupy starting area.

Each contestant shall have 7 minutes to complete each flight program. Time shall start when contestant begins to crank engine or two minutes after entering the starting area, whichever is later. Model must become airborne within the three minutes (plus one minute for each additional engine).

A multi-engine model shall be allowed additional minute for each engine in excess of one.

No points may be scored after expiration of time limit (7 minutes plus one minute for each engine).

6.2.7 Flight:

6.2.7.1 Take-off K=2

6.2.7.2 Realism in Flight K=4

6.2.7.3 Optional demonstration

6.2.7.4 Optional demonstration

6.2.7.5 Optional demonstration

6.2.7.6 Optional demonstration

6.2.7.7 Optional demonstration

6.2.7.8 Landing K=2

6.2.7.9 Taxi demonstration—engine cut off K=2

6.2.8 Optional demonstrations: Contestant shall give evidence that his subject normally performed each selected option.

Optional selections must be announced to judges in writing before take off.

The ve optional demonstrations shall be selected from the following list (the options may be in any order, but contestants must indicate flight plan to the judges before flight):

A. Multi engines option. All engines must be running at take off and shall continue to run for at least 10 seconds.

Note: K=2 applies to all multi engine subjects; no points are awarded for each individual engine.

B. Retract and extend landing gear. Gear may be retracted immediately after take off and extended for landing.

C. Retract and extend ailerons. If prototype used ailerons take off model shall also. Flaps shall be retracted for flight. If prototype used ailerons for maneuvering, models may also: ailerons shall be lowered for landing.

D. Drop bombs or fuel tanks. If bombs are carried internally bomb bay doors shall open, bomb drop, and doors reclose for maximum score; if bombs or fuel tanks are carried externally, they may be dropped as per prototype.

E. 3 loops of turns at 45° line angle.

F. 1 inside loop.

G. 3 inverted laps.

H. Wingover.

I. Figure 8.

J. Touch and go. Model should land normally and take off again without coming to a stop; precision smoothness of landing and take off will be judged.

K. Throttle control shall be demonstrated by landing with the engine still running. Throttle control should be demonstrated only once for score, either during touch and go or during final landing.

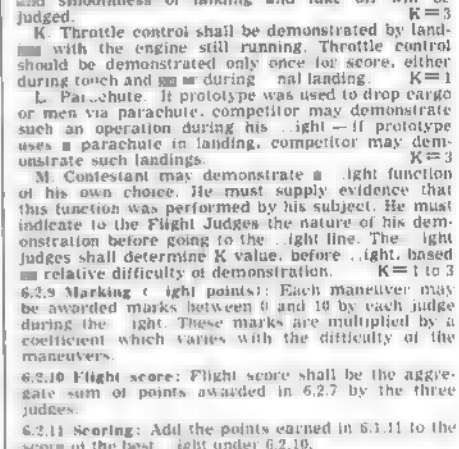
L. Parachute. If prototype was used to drop cargo or men via parachute, competitor may demonstrate such an operation during his flight—if prototype uses a parachute in landing, competitor may demonstrate such landings.

M. Contestant may demonstrate a light function of his own choice. He must supply evidence that this function was performed by his subject. He must indicate to the Flight Judges the nature of his demonstration before going to the flight line. The flight judges shall determine K value, before flight, based on relative difficulty of demonstration.

6.2.9 Marking (flight points): Each maneuver may be awarded marks between 0 and 10 by each judge during the flight. These marks are multiplied by a coefficient which varies with the difficulty of the maneuvers.

6.2.10 Flight score: Flight score shall be the aggregate sum of points awarded in 6.2.7 by the three judges.

6.2.11 Scoring: Add the points earned in 6.1.11 to the score of the best flight under 6.2.10.



The Avro Lancaster bomber of Linton Keith, San Jose, Calif., at 17 lbs. exceeds the FAI CL Flying scale maximum weight of 15 lbs. 6 ozs. for multi-engine models. Keith's model is two-time Nats Open CL Flying Scale winner (1967 and 1968). The model is powered by four Super Tigre 23's, has operable turrets, bomb bay doors and lights. Shot from 1968 Olathe Nats.



The Avro Lancaster bomber of Linton Keith, San Jose, Calif., at 17 lbs. exceeds the FAI CL Flying scale maximum weight of 15 lbs. 6 ozs. for multi-engine models. Keith's model is two-time Nats Open CL Flying Scale winner (1967 and 1968). The model is powered by four Super Tigre 23's, has operable turrets, bomb bay doors and lights. Shot from 1968 Olathe Nats.

Sets 220 Mile RC Record

Bill Bertrand, Allen Park, Michigan, flew his radio control model from Windsor to Toronto in Canada to claim what is believed to be a new FAI World Record. Distance covered during the May 3 flight was approximately 220 miles, subject to revision by actual distance certification. When accepted by FAI, Bertrand's RC straight line distance record will eclipse the mark of 184 miles achieved by Maynard Hill, Silver Spring, Md., in 1965.

Bertrand used a model of 1100 square inches, powered by a Super Tigre 40 front rotor engine swinging a prop of 12" diameter, 8" pitch. An O & R Pressure Regulator was used in conjunction with a gravity feed fuel tank holding 80 ounces of 50% gasoline fuel. Radio was Micro-Avionics, which operated elevator, engine fuel mixture and ailerons. Airborne batteries were two sets of Alkaline pencils hooked up in parallel.

The flight took 4 hours and 23 minutes, indicating an average speed of about 50 mph. At landing, 8 oz. of fuel remained.

1969 RC Symposium Books Now Available

When one constructs a reproduction of a subject airplane in miniature, with all dimensions scaled by the same factor, this gives assurance that the model will be a recognizable facsimile of the aircraft modeled. Then, after the builder carefully applies the color scheme and markings of the chosen subject so that it takes on the appearance of that airplane in a more definite way, most builders stop in the belief that their model is finished.

"It isn't," said Dave Platt, builder of the radio control SBD Douglas Dauntless which captured more points for scale fidelity and workmanship (at the 1968 Nats) than any other model, RC, CL or FF, at any previous National Contest. The missing "... ingredient is Character. If we forget this, our models will always be just that — nice models; nothing more. We must somehow capture the air, the dignity, the very soul of this proud machine that flies or stands on a runway like it is King of the Universe."

Platt, admitting his definition sounds a bit romantic, goes on to define in his opinion what constitutes character in a scale model airplane, tells how such effects are achieved, and lists in order of greatest importance the various character builders. He does this in a paper titled "Adding Realism to the RC Scale Model," the first of nine interesting, timely papers presented during the Twelfth Annual Radio Control Symposium, Silver Spring, Md., under sponsorship of the District of Columbia Radio Control Club, Inc.

The bound volume of papers, 76 pages plus introduction and cover, is must reading for any dedicated RC'er and for others whose interests are in the vein of the various subjects (all scale modelers would find Platt's paper of value, for instance). The 1969 RC Symposium papers are available from AMA HQ for \$2.50 each.

Other papers within the volume are "The Construction of a Modern Jet Type RC Scale Model," by Paul Sherlock; "The RC Helicopter Model," by John Burkham; "Wankel Engine for RC"; "Tiny RC Planes," by Dave Robelen; "Direct Lift Control with Coupled Flaps and Elevator," by Sweeney and Fred Marks; "The RC Glider: Experiments and Recent Developments," by Ray Smith; "Snoopy's RC Dog House," by Al Signorino and Bernie Murphy; "Critical Mechanical Aspects of the RC Engine," by Dick Hall.

AMA VP's Lament

By Art Schroeder

The business of representing District II has certainly been interesting, although difficult at times. As I am sure you are aware, copious amounts of steam are generated at various times — AMA is too RC oriented; AMA never does anything for RC — AMA is insensitive to the modeling community; AMA changes course at the slightest complaint — too many rules; not enough rules — rules change rapidly; it takes forever to pass a rule change — the rule book is late; who rushed the rule book? — too much help at headquarters; how come I can't get instant service from headquarters? — dues too high; why doesn't AMA do more things for us? — a self interest group perpetuates themselves on the Executive Council; we need more experience on the Executive Council — too many contest flyers running things; we should have only contest flyers running things — too many contest flyers; boy, we need to encourage contest flying.

All of the above could be called "A Lament from an AMA Official." Really what I'm saying is that the average member has got to get involved in the Academy and the Academy must, in some way, improve its image with its own membership. I guess the important, and overused, word is communication. Currently John Clemens, of Texas, has been employed as P/R man, part time. I begin turning the situation around. I must

admit that your District Vice President could become schizoid very rapidly under present conditions.

(Reprinted from Printed Circuit, monthly newsletter of the AMA chartered North Jersey Radio Control Club.)

RC Rule Correction

Pylon Formula II. In order to both correct and clarify the Formula II chord thickness rule in Section 23 — Radio Control Pylon Racing — Formula I and II, the following change takes effect immediately.

Under Section 23.4.7.3 chord thickness, Formula II: delete the third (or last) sentence in the first paragraph which begins with "Thickness of wings ..." and substitute the following:

"Chord thickness may decrease in a straight line taper from root to tip as viewed from leading or trailing edge."

**Bill Northrop, Chairman
RC Contest Board**

HQ note: The problem with the previous wording was that it required excessive processing effort. The intent of the rule is to have a wing with minimum thickness at the root, with thickness toward the tip but less than that obtained with a straight line from the root to the tip.



Gene Burnoski photo

Danny Burnoski is proud of the RC Ford Tri Motor built by his dad, Gene Burnoski, Downers Grove, Ill., from modified Smith-Plecan plans. Power is S.T. RC 61 (dummy outboard engine), radio is Logitrol. High lift wing caused risky early flights — necessitated reducing wing incidence.



Murry Frank photos

The June 1 FF meet at Electra, Tex., was almost blown out by 25-35 mph winds. Only the bravest registered to fly, said Contest Director Murry Frank. Tom Peardon, left, of Dallas, Tex., flew model shown in both Class A and B. Dick Mathis, right, also of Dallas, was high-point winner. Weather improved later in day. Net profit from meet to be donated to FAI team fund.

AMA News Bits

Sacramento Paper Features FF

Tear sheets from the Sunday, May 18, "Valley Leisure" section of *The Sacramento Bee* newspaper passed **■** way compliments of **Chuck Broadhurst**, executive director of the **National Free Flight Society**. Starting off the tabloid-size section's cover was a full page of FF action photos in color—very impressive. On the inside was another page with action photos plus a description of the various kinds of FF flying which take place at monthly **Northern California Free Flight Council** contests during the spring and summer, how to get to the contest site, and how to join the **AMA** chartered **Capital Condors** model airplane club. It is a fine example of good local model airplane activity coverage.

Elks Take to Wings

The **Presque Isle (Maine) B.P.O. Elks** has converted its lodge basement into a meeting room and workshop for a model airplane club under Elks' sponsorship, reports **Richard Theriault**, vice president of the model club. In January, the 100% **AMA** member **Presque Isle Model Aero Club** received **AMA** club charter.



Photo shows **Gary Grivois**, **Stephen Foster**, **Richard Theriault** and **Tod Skillings** studiously building control line models. Most club members are beginners. **VP Theriault** invites anyone who is interested to attend club meetings as well as building and flying sessions. Contact him at 125 Cedar St. for schedule.

Urges Clubsters Fly in Meets

Winding up a report of the **AMA** chartered **BIRDS 5th Annual Open Contest**, **Hal Mayberry** had comments for the different reasons members didn't participate:

"I am a Sunday Flyer" (not the club, but the state of mind). If you fall into this cate-

gory, stop reading now and skip to the other articles (in *Birds Eye Views*, from which this was taken).

"I would have flown, but my radio, airplane, **■** opener, etc., was broken." To these people go my sympathy, and we will see you at the next contest.

"I would like to, but I am not good enough yet." This is the group that the message **■** for: If you can land an airplane by yourself, you can fly contests. There were 23 entries in Class A, and many of these were rank beginners—**Debbie Hannon** was in seventh place at the end of three rounds. Did you hear that—**Debbie** is 16 years old, and she was ahead of 16 "contest" flyers. If **Debbie** can do it, why not you? Try it: it's kicks.

New MAAC Prexy

Our oak leaf friends to the north have a new president of the **Model Aeronautics Association of Canada** in the person of **D. E. Henshaw**, 3570 Academy Dr., Windsor 21, Ontario. In a recent letter to **AMA Executive Director John Worth**, Henshaw said that "It is our goal to continue to cooperate with **AMA** **■** every way possible to improve both our organizations in the future." **AMA** likewise pledges its mutual cooperation.

The **MAAC** **■** Canada issues licenses to model flyers, sanctions model meets, provides modeler insurance, issues flight records, selects World Championship teams, etc., much the same as **AMA** does **■** the United States. All Canadian model flyers ought to belong to the **MAAC**. Write to the **MAAC Secretarial Service**, P. O. Box 10, Islington, Ont., Canada, for application.

SoCal CL Assn. Considering Mufflers

Many radio control clubs have already instituted a muffler requirement for models flown at club fields, and more are doing so every day. Those who have put in such **■** rule report pleasure both from the lessened jangled nerves of modelers and the increased acceptance by flying field neighbors.

Beginning to creep into the scene is an increased awareness of the noise problem with control line models and the need **■** do something about it, as evidenced by a recent issue of the **Southern California Control-Line Assn. Newsletter** edited by **Jean Mead**. No doubt free flighters in **■** sections of the country will have to come to grips with this problem sooner or later as communities expand and place housing nearer and nearer to flying sites.

In **■** editorial in the May CL Newsletter,

the relationship between mufflers and flying field use is not debated—that's taken for granted. The problem the editorial deals with is that of **■** modeler equipping his engine with a muffler, as may be required at various flying fields in the Los Angeles area, and then finding out that he is hopelessly outmatched by models with unmuffled engines at **■** area contest. The alternative, says the editorial, is for the **Southern California CL Association** to enact a regulation for contests hosted by member clubs to require mufflers for engines larger than 1.5 cu. in.

An alternate solution, opposed to by the **SCCA** editorial writer, is to impose strict penalties **■** unmuffled contest entries. The **Western Associated Modelers**, active primarily in northern California, has used this system.

Seniors Winning RC

During one day **AMA HQ** received reports from **AMA** sanctioned meets in which Senior age entries had either won or placed high in radio control events. One was the **AMA** sanctioned **Bamberg (South Carolina) RC Invitational** on April 19-20, directed by **John Bradham**. **Al Todd III**, a Senior from Greenwood, S. C., placed first in Class A Pattern over Open entries. The other meet was the **AMA** sanctioned 4th Annual **Dallas (Texas) RC Club Contest**, May 3-4, directed by **Carl Summers**, in which another Senior, **John Jennings**, Dallas, won third in Formula I Goodyear in the combined age event. Good reflexes—congratulations young men!

FF Mobile Contest Center

Joe Hawkins, **Jim Dyer**, **Jim Stevenson** and **Willard Kehr** of the **AMA** chartered **Tulsa Glue Dobbers** are nearing completion of **■** Free Flight Mobile Contest Center, according to the club's *News Letter*. Most likely it will be in operation by the time this issue reaches newsstands. The Mobile Contest Center is mounted on a two-wheel trailer, accounting for its portability. It is designed with a drop table on the back with storage drawers and shelves, and additional storage for contest materials in the front. The trailer has a ridge pole on top, enabling a tarp or tent to be pitched over it. The unit should make much easier the running of the frequent **Glue Dobber** meets.

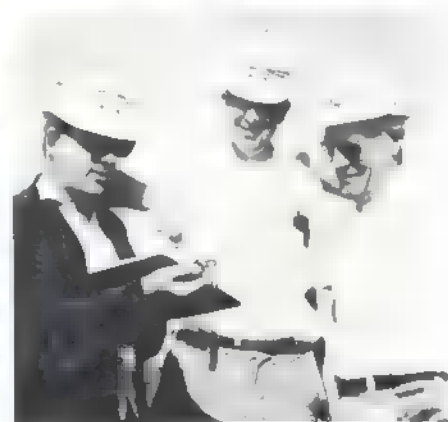
C. O. Wright Checks In

Young in spirit, though not so young in years, is **C. O. Wright**, the sixth president of **AMA** (1949-1950). We'd like to let all those who have been wondering what he has been up to lately know that **C. O.** has been active in many ways, including taking a new wife, since retiring in 1965 as executive secretary of the **Kansas State Teachers Assn.**

Still active in modeling at age 74, he reports that he hopes to get to **Willow Grove**



Fokker D-7, left, by **Justin Shumway**, Dallas, took Flying Scale at 4th Annual Dallas RC Club Spring Contest. Events heavily contested, particularly Form. I Pylon, 25 entrants. Plastic helmets (right) were



John Clemens photo

issued to all contest personnel—red for contestants, yellow for mechanics, white for officials. Shown are **Carl Summers**, Contest Director, **Bill Knost**, Dist. VIII RC CB member, **Bill Lank**, Dist. VIII VP.

for the Nats for at least a day or two. His health is good, although he says he is slowing up some. He likes to be in the sun — spends three hours or more in the garden each day. A hobbyist of multiple interests, a good deal of C. O.'s time is taken in refinishing and repairing old furniture, plus rebuilding old clocks for friends. An interesting project he completed this past winter was the rebuilding of an 1830 Terry clock, with wood gears, which he repaired or rebuilt from apple wood turned on his lathe.

CL 1000-Lap Rat Race

John Kilsdunk, Detroit, Mich., finished the Mid-American Model Aviation Assn. 1000-Lap Rat Race with a time of 41 minutes, 39.8 seconds, to come in first. Of the 15 entrants, seven finished the 1000 laps within the allotted time of one hour. The remainder completed from 885 laps (melted plug) to 1 1/2 laps (line tangle). One plane was broken, but there were no other serious mishaps, reports Contest Director Jerry Martin of the May 4 AMA sanctioned meet at Dayton, Ohio.

RC Great in Hawaii

Radio control model flying in Hawaii takes a back seat to no place, nor does the Club News monthly paper of the AMA chartered Hawaii RC Club — very professional looking. Catching our attention was a challenge by Contributing Editor Garry Johnson for the club to host a State RC Championship this year and for it to send a plane load of modelers to the National Contest in 1971 when it is expected to be in California.

Dad Is Club Secretary



John Clemens photo

Photo shows Norman Read, Jr., 8, preparing to launch a Jetco ROG, his first effort with a paper-covered model, during a flying session of the AMA chartered Dallas Aeromodelers (Texas). His father, Norman Read, Sr., newly elected club secretary, is a firm believer in the character-building aspects of airplane modeling as well as its edu-

cational values in the areas of science, mechanics and aerodynamics. The Reads, Junior and Senior, are also finding that modeling provides a fine vehicle for adult and boy to get together and know each other.

New Safety Committee Chairman

Carl Fries has stepped down from the position of chairman of the AMA Safety Committee, a position he held for several years. Ed Henry, Berkeley, Mo., has assumed the chairmanship by appointment of AMA President John Patton. Henry had previously been a member of the committee. Fries will serve as the committee's Nats Safety Observer.

Promotes CL Dive Bombing/Strafing

Despite high winds, the turnout for the April 13 AMA sanctioned Luftmeisters Custom Tailored Dive Bomb Meet at New York City was excellent in the opinion of Mike Agranoff, assistant Contest Director. He was especially impressed by the turnout of nine Juniors and 10 Seniors. Despite the fact that only four Seniors got balloons, and only one Junior got balloons without crashing (mainly due to the 20-25 mph wind), all made valiant tries with official flights. Agranoff recommends that the event be upgraded from supplemental to official AMA rule status, and that it be included among the Nats events.

RC Wing Rubber Suggestion

The Newsletter of the AMA chartered D.C. Radio Control Club recently reported the crashing of a member's Falcon 56 when the rubber bands gave way and allowed the wing and fuselage to part company. This was a fairly experienced pilot who has flown many models at the Fairchild-Hiller field in the past year.

He admitted that the bands were getting old. "We note he usually 'doubles' his bands," said the Newsletter. "That is, stretches them tight enough to put them around the pegs twice. That's a terrible strain on the bands. Some people prefer to put more bands (thus increasing the safety in numbers idea) rather than pulling them too tight. On the positive side, this pilot got to low throttle before the fuselage hit and thus minimized damage. Most of us would have just watched with our mouth open."

Suggests National AMA Week

A letter to AMA HQ recently suggests promoting the AMA and modeling by holding a National AMA Week just as is done by the Scouts, 4H and other organizations. During this week, writes George Fraser, advisor of the AMA chartered North Plymouth (Massachusetts) Balsa Bugs, clubs should make a concentrated effort to obtain local newspaper, radio and TV coverage of their activities. They should also arrange for store win-

dow exhibits and other public displays of models. This would also be a fine time for clubs to sponsor parent-son banquets and bestow special awards and honorary memberships to persons who have helped the club throughout the year. A Model Air Show, with free flying lessons for youngsters, is a "natural" for National AMA Week.

The benefits of a successful National AMA Week are obvious, but can it be done? Yes, but like so many things, the degree of success rests mainly with how vigorously it is promoted on the local level. While AMA, through HQ, could provide recommended programs, sample press releases, ideas, etc., these materials would be of little value without local level promotion. The North Plymouth Balsa Bugs is one club that wants a National AMA Week. Are there others — and if so, how many? If there is substantial support for the idea, it could be looked into further. Write to the AMA Vice President for your district, and send a copy to AMA HQ.

Bugs the Circle Burners



John Clemens photo

When Johnny Clemens was invited to show the AMA Super-8 movie of the 1968 National Contest to the AMA chartered Fort Worth Cowtown Circle Burners (Texas), he stumbled across an interesting story behind the "Wearing of the Bug" as shown in this picture. For a number of years there has been intense rivalry between two of Ft. Worth's clubs. Considering this, the worst punishment that a member of either club can imagine is to have it hinted that he has any connection with the rival club.

The Circle Burners have set up a novel "torture" for any of their members who have "goofed." They have an old broken relic of a model known as the "Balsa Bug," named in honor (?) of the rival club, the Fort Worth Balsa Bugs. The torture is for the erring member to have to wear the "Bug," hanging from his neck by a cord, during a club meeting.

If you know of any unique punishments or awards, please share them with us.



Bob Stalick photo



Dan Driscoll photo



Vic Boswell photo

l to R: Gene Lapanzie, Grosse Pt. Woods, Mich., with half size Chet Lanza old-timer. Workshop shot from beginner program in Oregon using AMA Racers; Willamette Modelers Club teamed with Albany Boys

Club and Tangent Rural Fire Protection District. Ken Purzycki, Clifton, N. J., with S.T. 40 Navy Carrier 1 Bell Airabonito — has 98 mph top speed. Patty Jo Thornhill, Mt. Rainier, Md., with Oily Bird she decorated.

Dist. III RC Club Association

During the Toledo RC Conference, March 1, the First Delegates Meeting of The Association of RC Clubs, District III (Ohio, Pa. and W. Va.) was held. Purpose of the association is to promote and assist in a well organized program of RC activity within AMA District III.

Among the specific things the association set out to do: provide assistance in establishing a non-conflicting calendar of RC events; provide assistance to association members (if requested) in conducting meets; encourage all member clubs to sponsor an event (contest or fun-fly); and encourage modelers belonging to member clubs to participate in activities.

SMAE Troubled

by Model Flying Near Airport

Modeling in England has received adverse newspaper coverage because an official group, while monitoring jet noise near Heathrow Airport, observed a model airplane believed to be within the approach path of the airport. This was reported by the Society of Model Aeronautical Engineers (SMAE), British equivalent of AMA. "The implications arising from a repetition of such an incident cannot be stressed enough: nothing could cause the end of model flying in this country so quickly as official sanctions upon the use of flying fields," said the SMAE.

Model flyers here, as well as throughout the world, must fly in areas well removed from runways and approaches of operating airports.

Slow Combat Popular in Midwest

Judging from various club papers received at AMA HQ, Control Line Slow Combat is popular in several sections of the country, particularly in the midwest. There are variations to local Slow Combat rules, but most we have seen specify plain bearing engines and prohibit pressure fuel systems.

The Slow Combat event at the April 27 AMA sanctioned Dedication Day Meet in Cincinnati, O., had 38 entries, attesting to its strong following. Contest Director Daniel Patton indicates that he favors including Slow Combat as an AMA event. An AMA member who wishes to propose new rules, or changes to present rules, should refer to page 8 of the 1969 AMA rule book for proper procedure.

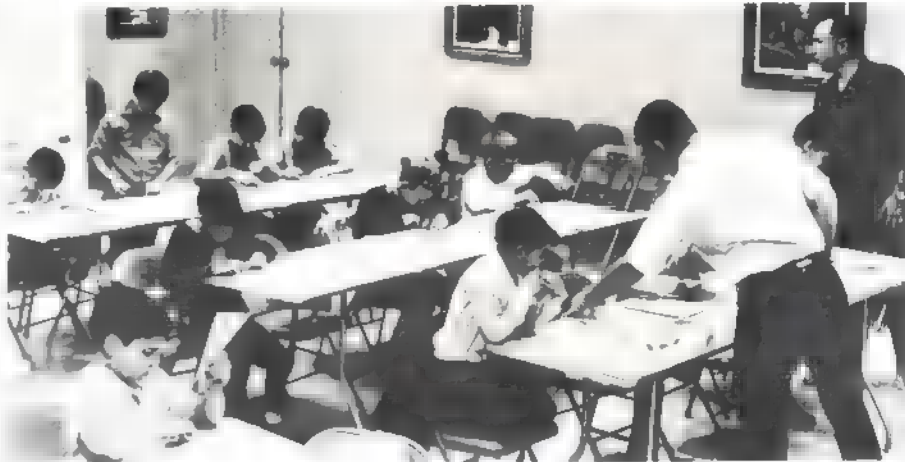
Keep Gates Closed

Alex Chisholm, writing in *Watts New*, publication of the AMA chartered Fresno Radio Modelers (Calif.), relates how one California club lost its flying field due to reasons like not picking up trash and, most particularly, for leaving the gate open when the club had been requested by the owner not to do so. The FRM's are in danger of losing their flying privileges at Madera Airport, says Chisholm. A warning has already been received. Not only must both gates at the airport be kept closed at all times, but the last one off the field must padlock both gates.

Model flyers everywhere should pay special attention to keeping fields free of litter and to complying with the requests of the owners. This will pave the way for continued use of these hard-to-come-by flying fields.

Tries Diesels for CL Goodyear

In reporting on the April 27 AMA sanctioned Aero Modelers of Aura Control Line Goodyear Meet at Vineland, N. J., Contest Director George Hubschmidt indicates that the event was run by special rules which he believes will, indirectly, promote FAI Team Race participation. What they did was lengthen the Heat and Feature to 100 laps and 200 laps (standard rules call for 70 and 140) and remove the pit-stop requirements. They found that diesel engines, which have generally been best for FAI Team Racing, fared pretty well under these conditions.



Jean Pallet photo

The Long Island Association of Model Airplane Clubs, in cooperation with Macy's Department Stores, organized a three-session model building course last year. In photo, Stewart Wolff (back to camera) and Bill Dunwoody (far right) are shown assisting youngsters. New JASCO kits also used.



Leonard Goss, Camphill, Pa., displays indoor rubber peanut scale model Sperry Messenger. Wishes others in his area shared his interests.



Photo by Chester Karasinski, Jr.

Flying Fool is his modified SE-5, says builder Chester D. Karasinski, Jr., Marlton, N. J. Presume it is control line, but he didn't say.



The AMA chartered Aquidneck Island Aeromodelers, Middletown, R. I., is a group primarily RC oriented, but some members fly control line and free flight. The photo was taken at the club's flying field on Berkeley Avenue in Middletown. Write AMA HQ for club charter information.



Scale Franklin primary glider, 18" span, flown indoors in light wind with 20' thread towline. Does 16-20 seconds indoors.

Many of the photographs in the AMA News section were contributed by AMA members. If your favorite type of model is not pictured, most likely none was received. Your assistance is requested in submitting interesting photos on all subjects, together with sufficient information for captions and photographer's name. Send photos (which cannot be returned) to Picture Editor, AMA HQ, 1239 Vermont Ave., N.W., Washington, D. C. 20005.

AMA News Extra

NEW FAI WORLD RECORDS?

RC Duration. With ■ flight total of 11 hours, 32 minutes, 30 seconds, Maynard Hill, Silver Spring, Md., is believed to have established a new Federation Aeronautique Internationale World Record for Powered Radio Control Duration Models. Hill's flight, just exceeding the previous record held by Bill Bertrand, Allen Park, Mich., by slightly over the required 2%, was set on June 1.

Hill was trying for a flight of over 15 hours which, if successful, would have established a new Absolute World Record (the longest flight irrespective of category), but when the Merco 49's muffler worked loose and fell to the ground after 45 minutes flight time--thereby voiding the attempt--insufficient daylight hours remained for ■ new start at the 15-hour flight. An approaching thunderstorm during the last few minutes of flight made doubly sure that Maynard could only break the class record.

The Merco was modified by Hill to operate on spark ignition (instead of glow plug). Fuel consumption was reported to be at ■ remarkably low rate of four ounces per hour.

Indoor Cat. I Duration. Harold Crane, Hampton, Va., has applied for a new FAI record with ■ flight of 20 minutes, 2 seconds, made on May 18. The flight was made in the Willis School auditorium which has ■ ceiling height of just over 20 feet, well within the maximum FAI Category I ceiling height of 26 feet. Crane's flight exceeds the record held by Jiri Kalina, Czechoslovakia, at 19 minutes, 20 seconds.

The model Crane used has ■ wingspan of 31.5" (which is larger than the 65 ■ span allowed for FAI Indoor World Championship models). An advisory from the FAI Technical Secretary is that the maximum span for WC models does not apply to records.

SPECIAL NATS RC PYLON AWARD

As this ■ written the Professional Race Pilot's Association, another of the National Aeronautic Association family of aviation organizations (as is AMA), was set to award the Art Chester Memorial Trophy for Excellence in Scale Aircraft Racing at this year's National Contest. The recipient is slated to be the Formula I RC Pylon Racing entrant who places 1st, 2nd, or 3rd and whose model is judged by the PRPA representative to be best on the basis of scale accuracy and detail consistent with the racing aircraft modeled. Art Chester, the man in whose memory the trophy is named, is noted for his contributions to aircraft racing as an engineer, builder and pilot. The PRPA award was suggested by the AMA affiliated National Miniature Pylon Racing Association.

WITH SADNESS WE REPORT

Richard A. (Dick) Schram was killed on June 4 while performing his "flying professor" act at an air show in Reading, Pa. A captain in the Naval Air Reserves and ■ former member of the Navy Blue Angels Flying team, Schram had been ■ crowd pleaser in air shows at a number of AMA's National Contests. His specialty was flying ■ Piper Cub (usually borrowed locally or rented) in the guise of ■ student pilot whose plane took off accidentally without the instructor. In this roll he would perform intricate low altitude maneuvers, usually no more than 300 feet above the ground. His many AMA friends mourn his passing.

Mike Des Jardins, Denver, Colo., died June 14 from injuries he sustained the previous Sunday when he and other race car pit workers were hit by flying debris from an out of control car which slammed into the pit area. An AMA member and Contest Director for ■ number of years, he had also previously been executive director of the National Free Flight Society. He will be sadly missed by all who knew him.

By special arrangement with the publisher this ■ is produced ■ the very last minute, just before the magazine is printed, ■ bring you the latest news concerning current Academy of Model Aeronautics events of national significance.

DIRECTORY OF AMA OFFICERS

Which officers live in your district? Select correct address when writing officers.

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John Patton, Route #5, Frederick, Md. 21701

Secretary-Treasurer:

Earl Witt, Longview Trailer Court, R.D. #3, Chambersburg, Pa.

Executive Director:

John Worth, c/o AMA Hq., 1239 Vermont Ave. N.W., Washington, D.C. 20005

Vice Presidents:

I: Cliff Piper, 391 Elm St., Pittsfield, Mass.

II: A. Schroeder, 18 Spencer Rd., Glen Ridge, N.J.

III: Eva Biddle, 2158 Street Rd., Warrington, Pa.

IV: C. Telford, 6212 Rayburn Rd., Bethesda, Md.

V: Jim Kirkland, 344 Edge Ave., Valparaiso, Fla.

VI: Gosta Johnson, 6810 S. Crandon, Chicago, Ill.

VII: Jack Josaitis, 23863 Lawrence, Dearborn, Mich. 48128

VIII: William Lank, 3143 Rotan Ln., Dallas, Tex. 75229

IX: Stan Chilton, 446 Ida, Wichita, Kans.

X: Vic Cunningham, Sr., 4337 Hornbrook St., Baldwin Park, Calif. 91706

XI: R. D. Stalick, 2807 S. Oak St., Albany, Ore.

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III: E. Biddle, 2158 Street Rd., Warrington, Penna. 18976 (East)

M. Weisenbach, 4566 West 148th St., Cleveland, Ohio 44135 (West)

IV: D. L. Johnson, 3387 Sudlersville So., Laurel, Md.

V: T. McLaughlin, 4140 Fern Ct., Pine Glades, Pennsylv. 15203

VI: Wheland Webb, 15722 Vine Ave., Harvey, Ill. 60449

VII: Odell Marchant, 2004 N. Hillsboro, Minneapolis, Minn. 55427 (North)

W. Hartung, 14759 Kilbourne, Detroit, Mich. 48213 (South)

VIII: M. Frank, 2933 Blankenship, Wichita Falls, Tex. 76708

IX: R. R. Combs, RR #1 Box 712, Morrison, Colo.

X: D. C. Farnsworth, 301 Carl Dr., Visalia, Calif. 93277 (North)

Pete Brandt, 3817 W. Ironwood, Palos Verdes Peninsula, Calif. 90274 (South)

XI: A. L. Grell, Rt. 1 Box 100, Tangent, Ore. 97380

CONTEST BOARD COORDINATOR: Don Lindley, 301 E. Elizabeth Dr., Crown Point, Ind. 46307

Bold type below indicates Chairman of Contest Board.

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I: Henry Struck, R.F.D. #2, Hamburg, Old Lyme, Conn.

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IV: J. V. Boyle Jr., 219 Shenandoah Rd., Hampton, Va. 23361

V: Jerry Wagner, 274 E. 8th St., Hialeah, Fla.

VI: Chuck Borneman, 1401 N. Taylor, Kokomo, Indiana 46901

VII: P. W. Klintworth Jr., 894 Brooklawn Rd., Troy, Mich. 48064

VIII: Robert Combs, c/o Del Rio National Bank, Cashier, Del Rio, Tex. 78840

IX: Frank Mouts, 6519 Marjorie Lane, Wichita, Kans.

X: John Pond, 2162 43rd Avenue, San Francisco, Calif. 94118

XI: J. Lenderman, Route 2, Box 460, St. Helens, Ore.

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IV: Wm. Purdue, 1407 Gracewood Dr., Greensboro, N.C.

V: W. D. McGraw, 1325 Carol Dr., Memphis, Tenn.

VI: Arthur J. Johnson, 1818 Oslo Drive, Rockford, Ill. 61108

VII: Howard Mottin, 2124 Common Rd., Warren, Mich.

VIII: Leland Morton, Triton, Dallas, Texas 75227

IX: J. R. Mason, 2214 S. Pine Crest, Wichita, Kans.

X: J. E. Barr, 7418 Collet Ave., Van Nuys, Calif.

XI: Keith Loutocky, 1419 S. 48th, Tacoma, Wash.

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CONTEST CALENDAR

Official Sanctioned Contests of the
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Aug. 2 — Richmond, Va. Brainbusters FAI FF Qual. Trials. Site: Curles Neck Farm. R. Orr CD. 102 Bickfield Dr., Hampton, Va. 23666. Sponsor: Brainbusters.

Aug. 2 — Salt Lake City, Utah (AA) Summer Fiesta for RC. Site: Saltair Modelport. C. Panner CD. 1781 Mtn. View Dr., Salt Lake City, Utah.

Aug. 2-3 — Tacoma, Wash. (AAA) Jim Walker Memorial FF Meet plus RC Glider. Site: Hart's Lake Prairie J. Shafer CD. 5720 122nd Ave., S.E., Bellevue, Wash.

Aug. 2-3 — Chicago, Ill. (AA) 3rd Annual SAC RC Contest. Site: Flossmor Rd. & Central Ave. S. Peterson CD. 6416 S. LaPorte, Chicago, Ill. Sponsor: Suburban Aero Club of Chicago.

Aug. 2-3 — Riverview, Mich. (AA) 16th Annual Indian City RC Meet. Site: Allen & Pennsylvania. E. Lynn CD. 3167 22nd St., Wyandotte, Mich. 48192

Aug. 2-3 — Cleveland, Ohio (AAA) Cleveland Jr. CL Air Races. FAI CL Team Selection Meet. Site: Cleveland Model Flying Field. A. Montano CD. 3911 Daisy Ave., Cleveland, Ohio 44109

Aug. 2-3 — Winchester, Tenn. (AAA) Tenn. State FF. CL. RC Championship Meet. Site: Airport. L. Webster CD. 10000, camore, Manchester, Tenn. 37355

Aug. 2-3 — Fargo, N.D. (AA) F. M. Skylarks CL Championship Meet. Site: 12th Ave. N. Elm St. M. Olson CD. 305 N. 27th Ave., Fargo, N.D. Sponsor: F. M. Skylarks.

Aug. 3 — Denver, Colo. FAI FF Qual. Trials. Site: E. Colfax Air Park. E. Collins CD. 4318 E. Utah Pl., Denver, Colo. Sponsor: Magnificent Mountain Men.

Aug. 3 — Alton, Ill. (AA) Illinois Metro-East Airplane CL Contest. Site: Civic Memorial Airport. J. Blum CD. 2417 Glen Pl., Granite City, Ill. 62040. Sponsor: Tri City Sky Steelers & Alton Area Thunder Bolts.

Aug. 3 — Sharon, Pa. (AA) Skylarks 3rd RC Jamboree. Site: Club Field. G. 1077 March St., Sharon, Pa. 16146. Sponsor: Skylarks.

Aug. 3 — Bong Field, Wis. 1971 FAI FF Qual. Trials. P. Sotich CD. 3831 W. 62nd Pl., Chicago, Ill. Sponsor: Illinois Model Aero Club & Chicago Aeromats.

Aug. 3 — Ponca City, Okla. (AA) Annual CL Contest. Site: Skeeter Field. W. Patterson CD. 816 S. 7th, Ponca City, Okla. 74601. Sponsor: Ponca Skeeter Pilots.

Aug. 3 — Grand Junction, Colo. (AA) 2nd Annual CL Contest. Site: Lincoln Park. G. Kirkham CD. 238 Hill Ave., Grand Junction, Colo. 81501. Sponsor: Grand Junction Modelers.

Aug. 3 — New Bedford, Mass. (AA) 1969 CL Classic. Site: Airport. L. Gadomski CD. 166 Richmond St., New Bedford, Mass. 02740. Sponsor: New Bedford MAC.

Aug. 3 — Dunkirk, N.Y. LSAM 2nd Annual RC Fun Fly. Site: LSAM Field. A. Heminger CD. 1031 Central Ave., Dunkirk, N.Y. 14165

Aug. 3 — Wichita, Kans. Wichiawks Flying Circus. Site: Wichita Modelers Council Field. J. Finley CD. 5217 E. Murdock, Wichita, Kans. 67218. Sponsor: Wichiawks.

Aug. 9-10 — Freeland, Mich. (AA) Saginaw Valley RC Annual. Site: 2240 Lone Road. G. Gili CD. 2020 Lone Road, Freeland, Mich. 48623. Sponsor: Saginaw Valley RC Club.

Aug. 9-10 — East Granby, Conn. (AA) New Eng. RC Championships. Site: NCRCC Field. E. Brant CD. 16 Amoryllis Dr., Windsor, Ct. 06095

Aug. 9-10 — Jacksonville, Fla. (AA) Jacksonville RC Meet. Site: Herlong Airport. H. Pierce Jr. CD. 200 W. Forsyth St., Jacksonville, Fla. 32202. Sponsor: Jacksonville RC Club.

Aug. 10 — Lancaster, Ohio. Forks Fun Fly for RC. Site: Whitey Rd., S.W. 8. Slater CD. Box 489, Lancaster, Ohio 43130. Sponsor: Fairfield Ohio Radio

Kontrol Society, Inc.

Aug. 10 — Lakehurst, N.J. (AA) 12th Annual North Jersey RC Meet. Site: Naval Air Station. F. van der Will CD. 86 Beech St., Maywood, N.J. 07607. Sponsor: North Jersey RC Club.

Aug. 10 — Cleveland, Ohio (AA) Jr. Air Races for FF. Site: City Field. R. Klumber CD. 2021 Lakeland, Lakewood, Ohio 44107. Sponsor: NOFFA.

Aug. 10 — Hastings, Minn. (AA) Mpls. Annual FF Silent Meet plus RC Glider. Site: Webers Airport. H. Langevin CD. 4854 Aldrich Ave., S., Minneapolis, Minn. 55419. Sponsor: Minneapolis MAC.

Aug. 10 — Denver, Colo. (A) MMM Monthly Outdoor FF Meet. Site: Prop Buster's Field. A. White CD. 1373 Bellaire, Denver, Colo. 80220. Sponsor: Magnificent Mountain Men.

Aug. 10 — Hempstead, N.Y. (AA) LIAMAC Annual Invitational FF. CL Contest. Site: Mitchell Field. W. Dunwoody CD. 985 Ft. Salonga Rd., Northport, N.Y. 11768.

Aug. 10 — Sioux Falls, S.D. (AA) Sioux Empire Model Airplane CL Championships Meet. Site: Fair Grounds. J. Donovan CD. 1409 Thompson Dr., Sioux Falls, S.D. 57105. Sponsor: Flying Eagles Model Club.

Aug. 10 — Cincinnati, Ohio (AA) Tri-State Combat CL Championships. Site: Lanken Airport. D. Patton CD. 2493 Downing Dr., Cincinnati, Ohio 45208. Sponsor: Extremator Combat Team.

Aug. 16-17 — Marietta, Ga. (AA) Marietta Annual RC Meet. Site: Cobb Co. RC Field. L. Johnston CD. 1021 Church St. No. E-3, Smyrna, Ga. 30080. Sponsor: Cobb County RC Club.

Aug. 16-17 — Converse, Ind. (AA) 2nd Annual Converse RC Flying Club Meet. Site: Airport. W. Hutchins CD. 122 N. Munson, Portland, Ind. 47371. Sponsor: Converse RC Flying Club.

Aug. 16-17 — Baton Rouge, La. (AA) Baton Rouge RC Club 8th Annual RC Meet. Site: Klempeter Field. L. Bontwell CD. 1739 Oak St., Baton Rouge, La. 70813.

Aug. 16-17 — Endicott, N.Y. (AA) 13th Annual Aeroguidance Society RC Contest. Site: Tri-Cities Airport. R. Noll CD. 98 Pine Knoll Rd., Endicott, N.Y. 13760. Sponsor: Aeroguidance Society, Inc.

Aug. 16-17 — Tullahoma, Tenn. (AAA) 10th Annual Airfliers FF Meet. Site: AEDC. A. Mansfield CD. 621 Glendale Pl., Tullahoma, Tenn. 37388. Sponsor: Coffee Airfliers.

Aug. 16-17 — Odessa, Tex. (AAA) Odessa-Midland 13th Annual FF Contest. Site: Ector Airport. L. Hood CD. This contest which was previously scheduled has now been cancelled.

Aug. 16-17 — So. El Monte, Calif. (AA) RC Contest. Site: Whittier Narrows. J. Garabedian CD. 909 N. 3rd St., Montebello, Calif. 90640. Sponsor: San Gabriel Valley RC.

Aug. 16-17 — Shakopee, Minn. (AA) 13th Annual TCRC Meet. Site: TCRC Field. J. Duncan CD. 3835 Tonkavood Rd., Minnetonka, Minn. 55343.

Aug. 16-17 — Omaha, Neb. (AA) 13th Annual Omaha RC Contest. Site: Club RC Flying Site. R. Hess CD. 11730 Cedar St., Omaha, Neb. 68144.

Aug. 17 — Aurora, Colo. Model Museum Old Timer Fall Meet. Site: E. Colfax Air Park. B. Schlemm CD. 3370 S. Franklin St., Englewood, Colo. 80110. Sponsor: Model Museum Flying Club.

Aug. 17 — Grand Ledge, Mich. (AAA) Lansing Flying Aces Annual FF. CL Contest. Site: Airport. J. Hansen CD. 12893 Bayview Dr., Vicksburg, Mich. 49097. Sponsor: Lansing Flying Aces.

Aug. 17 — Flushing Meadows Park, N.Y. (AAA) Assoc. of MAC of Greater N.Y. CL Meet. Site: Model Airfield. W. Boss CD. 143-24 223rd St., Laurelton, N.Y. 11413.

Aug. 17 — Fountain Valley, Calif. (A) Orange County Thunderbuds Monthly for FF. CL. Site: Mile Sq. D. Essinger CD. 6631 Oxford Dr., Huntington Beach, Ca. 92647. Sponsor: Orange County Thunderbuds.

Aug. 17 — Oklahoma City, Okla. (AA) Central Okla. CL Championships. Site: Topping Park. 5300 N. Bdw. Ext. M. McGee CD. 1805 N. Tulsa, Oklahoma City, Okla. 73107. Sponsor: Oklahoma City Controlfliers.

Aug. 17 — St. Louis, Mo. (AAA) 11th Annual Midwestern CL Championships. Site: Buder Park Model

Continued on page 66

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Scale Techniques

Continued from page 22

er ends. To complete the landing gear, cut out two small doors to mount on the front of the struts, and replace the small housing pieces cut earlier in their new position.

A new oil cooler must now be formed. This is approximately 1/4" in diameter and can be made of plastic sprue, dowel, or whatever is convenient. This should be placed in position 1/4" from the flat spinner surface and faired generously with putty.

A small carburetor intake can now be formed and glued in the hole previously made in the top of the fuselage. To build a new radiator, plastic sheet is best, but other material (even balsa) can be used. The dimensions should be 1" long and 3/16" wide at the front, tapering to 3/16". It also should have a tapering surface as shown. This is added to the bottom of the fuselage and faired into the surrounding surface.

New exhaust pipes can be made from plastic sprue cut to the length of the existing holes in the fuselage, and scribed to show the divisions. The edges of the openings should be beveled so that the end result will have a half-round appearance.

To complete the construction, remove all wing guns, and snip off the guns protruding from the nose housings, as the only armament on the XP-40 was one .30-cal. and one .50-cal. machine gun, and they did not stick out of the fairings.

If you desire to build the model in 1/32 scale, the best method would be to use a P-35 kit, cutting off the nose at approxi-

mately the wing leading edge and making up a new nose from balsa, or vacuum forming one if this method is available to you. Building the model in this scale offers the advantage that the landing gear can be used as is, and, of course, the amount of cutting and filling necessary is proportionately reduced.

The finish and markings for this aircraft are very simple. It is overall natural metal with the insignia in only the four wing positions, and the red, white, and blue striping on the rudder. In addition, the wording "U.S. Army" appears under the wings in black.

For the natural metal finish, many methods are available. Metal foil, silver paint, or one of the silver pastes, such as Rub 'N Buff or Treasure Silver can be used. Rub 'N Buff was used on the model pictured. The technique of application varies, but the following has worked well for the author.

With any silver finish, surface defects show up well, so close attention is necessary to attain a smooth finish. Next, all painting is done and masked off. In this case, only the black wing-walks and the rudder are involved. A coat of flat paint then is applied; any color is satisfactory, but white or silver is probably best. Alternately, the model can merely be sprayed with a flattening agent, such as Dull-Coat by Testor, since the object is to give the paste a surface to which it can adhere. Using a small amount on a piece of cotton, apply the paste to a section of the model, then polish it with a soft, clean cloth. These pastes produce a very realistic metallic sheen, and if the paint or flattening agent has been used, decals can

be applied with little difficulty.

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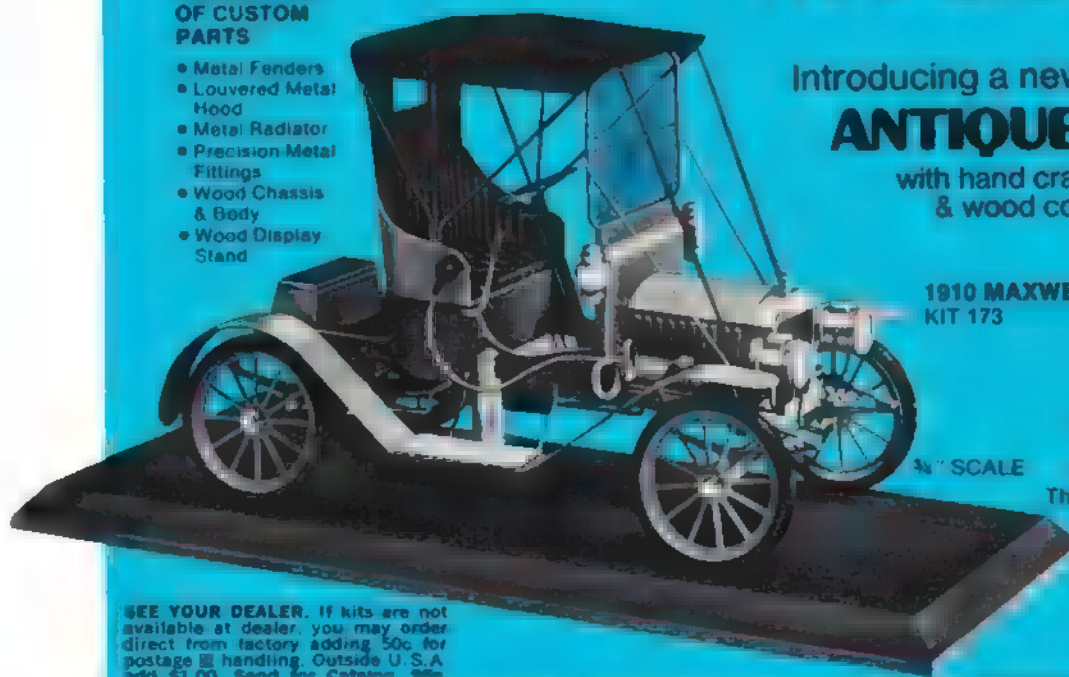
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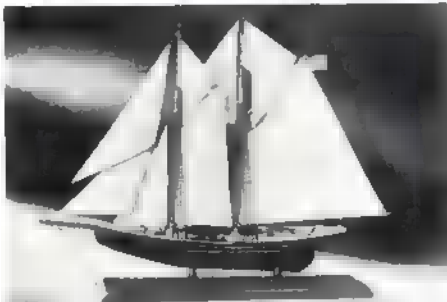
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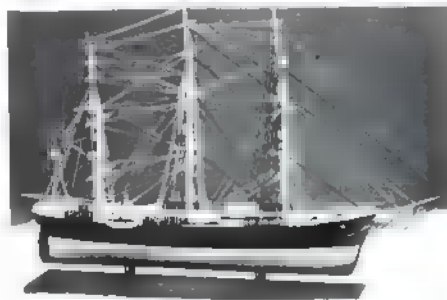
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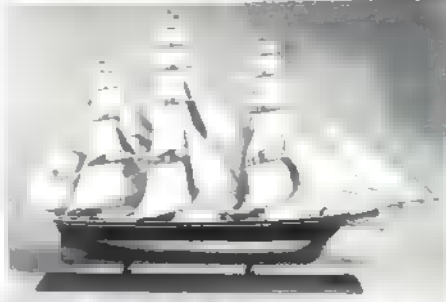
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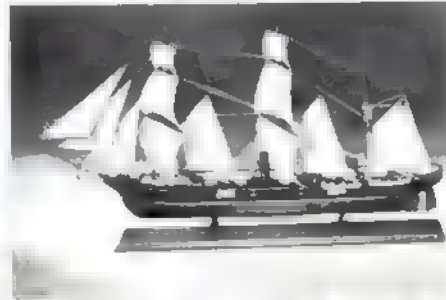
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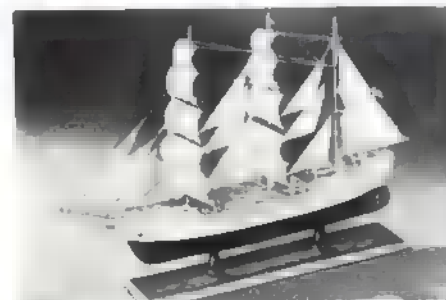
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Skirts Flying Minis

Continued from page 27

when they aren't busy flying the "real" birds. Norma now holds her commercial license. She also has spent many hours as contest director for the Mile-Hi R/C Club and is known for running a good meet.

First successful flights are highlights for everyone. Mrs. Bill (Bonny) Jenkins, Memphis, says, "My most thrilling moment was when I flew my Starduster under full power for the first time. The thrill of seeing my own plane fly was tremendous. Learning to start and tune my motor was satisfying, too, disregarding all the times the prop 'bit' me." Bonny, a member of the Tennessee Model Airplane Assoc., won first in 1/2-A free-flight at Clarksdale, Miss., in 1968, as well as a second place at Cleveland and a third at the Volunteer State Model Championships.

Mrs. Kenneth (Loretta) Hall, Studio City, Calif., best known as the editor of the Valley Flyers newsletter, also recalls the thrill of her solo flight. It was on Dec. 25, 1967, with Frank Capan, fellow Valley Flyer, as instructor. "When I finally landed, he grinned and said 'Merry Christmas.'" Loretta made her first and only contest winning at the 1968 SCRC and RCM Fourth Annual Scale meet with a fifth place. The first multi ship she ever built was a Senior Falcon and she is now working as a Sportmaster.

Mrs. Lin (Gayle) Haslam, Salt Lake City, used to fly in A-2 Nordic, but now her biggest contribution to modeling is the monthly typing of husband Lin's newsletter. The Dope Bucket, for the Utah State Aeromodellers. She has been known to retrieve both by motor scooter and horseback. Horses are her big hobby.

All the girls readily give credit to the husbands, fathers and boy friends who help them out when the going gets rough. Mrs. (Dolly) Wischer, of Delafield, Wis., says, "Guys will say to Bob, 'Man you have it made, your wife builds, too.' Little do they know how much time he spends telling me how and/or what to do next. But," she adds, "I do all my own work. At our house, no one touches the other fellow's stuff."

Mrs. Carroll (Arless) Powell, Tucson, also has her own work bench. "In fact," she says, "we added a 16 x 39 room to our house, our model airplanes and trains would have a home. We each work at our own benches, which are slab doors with legs. I've learned to drill and solder, but for a long time I drilled holes that would fit only those crooked bolts that come out of engines after you've made a horrendous landing."

Mrs. John (Amy) Boudreau, Garden Grove, is perhaps a typical explanation of the entry of the average wife into modeling. "I decided I would show a 'polite' interest in John's hobby," she says, "so I built a model called Bewitched. And, I am now genuinely interested. Modeling is fun! We build together and fly together and our little girl goes right along."

Champion Techniques

Continued from page 39

pletely cowed the undercarriage. The wheel is supported on both sides of the axle by a U-shaped bracket inside the model. This is bonded to a sheet of rubber 1/2" thick which, in turn, is bonded to a 1/4" plywood sheet floor in the fuselage. Bamboo guide dowels pass through the whole assembly to keep the undercarriage in line as the rubber absorbs the landing forces

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and surface roughness. The engine mounting plate is a solid bar of alloy machined to leave a solid front that completely envelops the Supertigre 15's front housing. Very small diameter propellers with very thick and wide blades have to be used to permit ground clearance due to the low fuselage lines. Note the shut-off reset button on the side of the fuselage.

Now that Stanzel Mono-Line units are no longer made in the U.S.A., and H & H Torque Units are the only single-line control mechanisms available, most competitors make their own. The American Pink Lady models, with their alloy wings and very narrow glassfibre fuselages, used home-made units built on the Stanzel principle. Because of space restrictions, they used lengths of spring as the worm gear and anchored the torque wires to the outboard wingspar. Arnie Nelson used modified Stanzel Stuntmaster units in his asymmetrical models.

Arnie Nelson's two asymmetric models should be described in more detail, even though they did not win the Championship. We asked Arnie why he had used side-winder engines on these asymmetric models, and the reasons are of interest to all control-liners. With an upright engine that is flying on a tangent to a circle, any wind tends to hit the side area of the cowling and force the model nose out of the circle, thereby increasing the drag and slowing the model down. By turning the engine sideways the effective horizontal sideways force is halved, hence halving the drag. The wing area is all on one side of the model (inside) and the tailplane is all on the outside, so it does not have a wing turbulating the air before it gets to the tailplane. These types of models have one unfortunate vice. When the engine cuts, the model dives for the ground. This is because the cowl contributes a lot of lift off the propeller wash during flight, and as the model is trimmed primarily to fly on power, it dives when the engine stops and the lift is reduced. This can be handled though, as shown by Arnie, but it takes experience. The T.W.A. powered asymmetric model was not flown in the Championships due to lack of practice beforehand; but the Supertigre version went really well. Another unusual point is that the control unit is mounted directly onto a U-shaped steel bracket in the fuselage that is bolted directly to the pan. This means there is no G-pull on the spar or alloy sheet wing, making for a much stronger model.

Of the British speed men Gordon Farnsworth did not record any times because he had a leak in his fuel line, and Bill Firbank crashed because his fuselage was too thin and bending under back pressure from the pipe. This gave the tailplane fatal positive incidence. Brian Jackson's T.W.A. has passed its peak and we understand the lads are going to get some new engines.

The Danish Hasling brothers, who did so well in team race at last year's Criterium of Aces, were pretty hot again this time and now use an H.P. 15D. As with most other contestants, they use an overflow prime tube to assist starting, but with a difference. To prevent flooding by over-priming they have fitted a remote needle valve on the back of the exhaust stack. This allows them to regulate the amount of fuel they pump into the exhaust port.

Over half the contestants at the Champs in team race used Bartels glass-fibre propellers and, from experience with them and what we saw at the Champs, they are unbreakable with normal usage. What few modelers realize is that from the large range of sizes made now, there are two team-race types. One is molded to the M.V.V.S. shape, while the other is a Tornado Plasticote shape. The latter were new to many and were snapped up from the stock Jurgen Bartels brought along to sell at the meeting in Helsinki.

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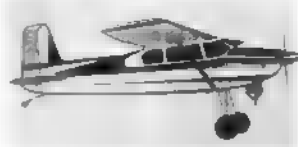
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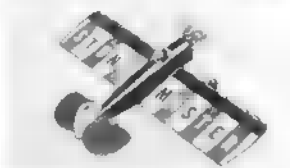
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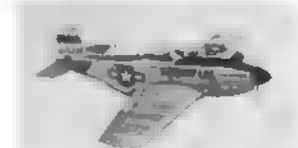
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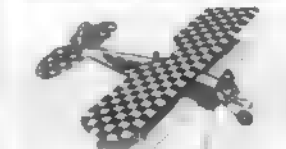
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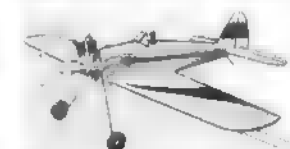
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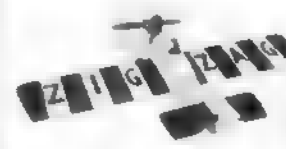
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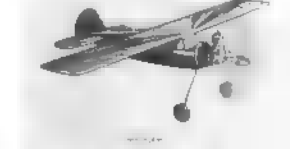
Kit 28 LITTLE DEVIL, 18" Carved body, shaped wing \$2.95



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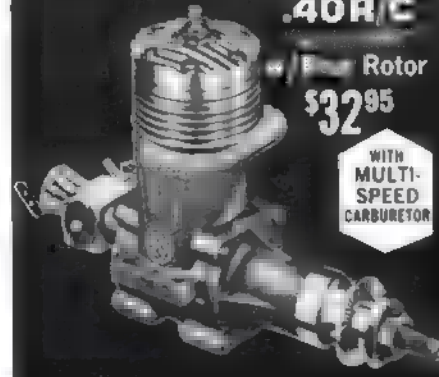
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Para Loft

Continued from page 28

possible. ■herwise the fins will shear off during acceleration. (Hobbypoxy Formula 1 works beautifully.) Also make sure that each is aligned and stands out straight from the body, then add small white-glue fillets.

When they are dry, poke a pinhole in the middle of the reinforced fin section. Cut a 1" length of shroud line, tie one end to this section and the other to an 18" piece of 1/2" contest-rubber. Put a drop of cement on each knot and your booster is complete.

Payload section: Start the "egg crate" by cutting down to four inches the plastic tube from the PS-50E. Next, split lengthwise the nose cone and balsa transition. Hollow the cone carefully to a 1/4"-thick shell, except for the shoulder, which should be 1/8" thick. A router in the No. 5 X-acto handle works very well here. Aside from the BT-50 shoulder, which is left solid, hollow the transition to a 1/4" thickness. Glue the halves of both pieces together.

The nose cone is finished in the same manner as the fins, but skip the third coat of clear dope. Don't skimp on the fillet; a really grainless cone is worth the extra effort, paying off in low aerodynamic drag and excellent appearance.

For best performance, the transition also should be finished this way, and the plastic tube joint later filled in, but, if you are in a rush, MonoKote can be cut according to the plans. If the latter is chosen, sand the transition lightly, make sure the edge between transition and shoulder is sharp, then carefully apply the MonoKote. Air pockets here will be extremely difficult to remove later, so make sure this is as even as possible. Seal the edges and shrink as before.

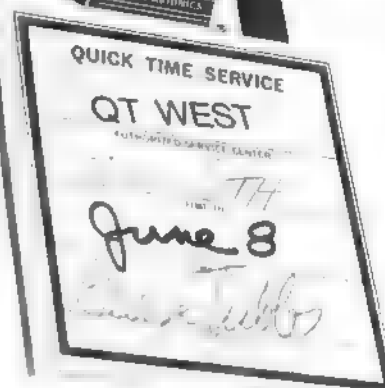
Cut four 1/2" pieces of rubber band and contact cement two each at right angles across the mouths of both of the parts. These help to absorb the shock of launch and ejection, while adding little weight. Use 1/2" cubes of foam rubber for any further padding. Cement another launch lug to the payload tube and again check alignment. Press four tape strips to the inside of one end of the tube and glue in the transition piece. The nose cone should fit tightly in the other end. If it doesn't, build up the shoulder with tape.

Screw the screw-eye into the solid shoulder of the transition, remove it, squirt glue in the hole and reinsert the eye. Cut a small notch across the shoulder for the shroud line to enter the body, checking that, when the launch lugs are in line, the notch will align with the reinforced fin. Your Para-Loft is complete.

Molds for 'Chute Duration: These are not instructions for constructing the Parachute Duration model but an explanation of the differences between the two layouts. Anything not mentioned here is the same as on the Egg Loft.

Instead of engine mount strips, a 2 1/4" piece of BT-20 should be centered in the BT-50. Glue an engine block into one end of the BT-20. Make two sets of two RA-2050 paper adapter-rings glued together, and glue one of these 1/2", and the other 2" from the end with the block. When these are dry, sand them to a tight slip fit in the BT-50 and glue the entire assembly in, block forward, so that the ends of the two tubes are even.

Instead of two launch lugs, when cutting the MonoKote for the body tube, enlarge one of the slots to 3/8" wide. Later, cement a single lug in the body joint of the fin in that slot. In place of the payload section, round the tip of a BNC-50K nose cone, making it a lower-drag parabola, and finish it in the same way as described for the other cone. Also cut a corresponding notch on the shoulder and install a screw-eye. Add a 2-to-3" diameter chute and you have your Parachute Duration bird.



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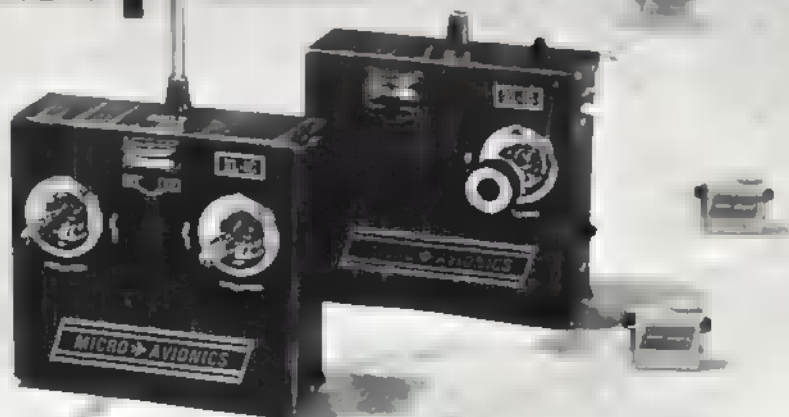
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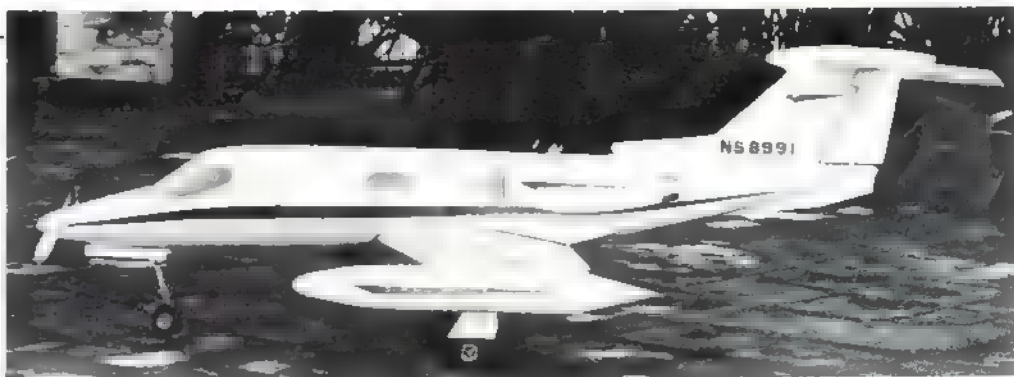
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Flying: In the Egg Loft configuration, ParaLoft should be flown with a Flight Systems E-O 836-6 engine. As a P/D bird, it may be flown with any 1/2A through C-class engine. In either case, wrap masking tape around the engine until it makes a very tight fit in the engine mount, then install it in the rocket. This has to stop the ejection charge from kicking out the engine. If the engine goes, the parachute won't, giving the type of ballistic trajectory noted at the beginning of this article. This usually demolishes the rocket you worked hard on, not to mention spreading raw all the landing area.

If flying Egg Loft, after tying the shockcord to the screw-eye, add another 1' length from the eye to the parachute, using 18 to 24" parachute, depending on the strength of the winds. For either event, use sufficient flame-resistant material (such as rock wool) to protect the chute into the body first, then dust, fold and pack the chute. Add the cone, an igniter, and ParaLoft is ready to fly.

The variations and additions to this basic body design, as mentioned before, are almost unlimited. Why try a few of your own?

PARTS LIST

All part numbers from Estes Catalog No. 68-1, equivalent parts are available from Centuri.

Egg Loft: 1 - PS-50E payload; 1 - NB- nose block; 1 - 1/2" x 3/8" rubber; 1 - 1/2" x 1/2" Contest rubber.

Parachute Duration: 1 - BNC-50K cone; 1 - EB-20A engine; 1 - BT-20J tube; 4 - RA-2050 adapter; 1 - 1/2" x 1/2" Contest rubber.

Either: 1 - BT-50 body (makes two), or BT- tube (makes one); 1 - 1/2" x 2 x 3/8" balsa; 1 - screw-eye (small); 12" - thread line or string; 1 - launch lug (small paper straw); cloth reinforcement. MonoKote regular; parachutes.

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La Jollita

Continued from page 24

the elevators roughly in place while other work is being done. The fin is sanded to shape to match the rudder and fuselage, after the scrap fillet is added. The fuselage aft of the doublers can be rounded top and bottom, tapered upward from the center strip to approximately 1/8" thick and then rounded. The area below the center strip should not be tapered, as it weakens the fuselage.

The landing gear is made in two halves and bent to the shape shown in the front view. The portion extending into the fuselage will have to be shortened to one-half the fuselage thickness after bending. Drill a 1/32"-diameter hole through the fuselage, where indicated, and insert a length of 1/8" I.D. brass tubing flush with both sides. Fit one landing gear half in place and draw a pencil line on either side of it. Drill a series of small holes through the fuselage along these lines. Install both landing gear halves and thread soft wire through the holes and around the struts.

The cheek cowl has a purpose other than just appearance. Adding a little bit to thickness adds a lot of strength. The cheek cowl is 1" thick. It provides a stronger, more rigid engine mount. The engine must be mounted on a strong structure, capable of absorbing vibration and torque loads, in order to deliver its maximum power. It should also be mounted squarely and securely so that the crankcase is not distorted when tightening down the mounting bolts. The light-weight, potent 15-size engines suffer large power losses through internal friction if the case is distorted. Enough force to do this can easily be applied through the four small-appearing No. 4 bolts we use to mount engines. This distortion created by an improper mount-



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ing may not be visible to the naked eye, but the engine can refuse to put out that last several thousand rpm.

The cheek cowl, running back and surrounding the front section of the wing, provides the necessary support to allow the engine to deliver full power. A properly mounted, inexpensive engine can deliver more than one of the potent engines which is poorly mounted. Carve and sand the cowl to shape after gluing in place.

A layer of the 3-oz. fiberglass cloth, as sold by Sig, is a good addition to the cowl, though not completely necessary. It can be applied to act as fillets around the cowl. This could be done at the same time the fiberglass and epoxy fairings are built up over the landing-gear struts. A landing gear installed in this is almost indestructible. Bend tail-skid and mount.

I finished my La Jollita with epoxy using the Hobbypoxy "Easy-Fill" method. This adds considerably to strength and gives a

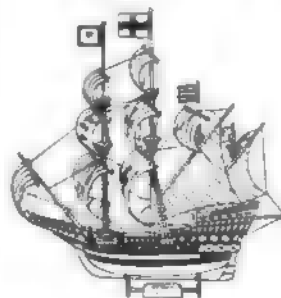
tough surface for a good base for the final finish. Several coats of Hobbypoxy paint were sprayed on, wet sanded with 600-grit paper, and then treated with rubbing compound. However, choose the method of finishing which you have found best for your needs.

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No. 1081, Oily Bird—Great FF model for Tenderfoot by Frank Ehling. Easy to build; easy on cost; easier to fly. Uses an .020.

Price—\$.75.

No. 0792, Rivets—Speedy, responsive performing R/C model. Owen Kampen designed for an .020. Adams Baby Actuator for rudder-only control.

Price—\$1.50.

No. 0793, Atom—Howard Mottin's Advanced Training Model for novice, Control-Line. Sheet balsa. Easy flyer. A .15 or .19; convert later to larger sizes.

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No. 1183, Corrigan—James Wilson's unique 1/2A C/L stunt model. A canard, flies tail first! Stable like big stunt ships. Easy to build with 23" span.

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No. A693, Sweeper—Windy Urtnowsky's giant, control-line stunt model has 78" span, .60 up front. Design is practical with many trim adjustment features.

Price—\$2.50.

No. A695, Lady Maxley—Brian Donn's A/2 Nordic towline glider. Davis 3 airfoil with a Ritz-type construction.

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No. A697, Dwarf Dip III—Easy-to-fly, rubber-powered Coupe de Hiver design by Charles Sotich a winner! Great fun for small fields. Warp-resisting structure.

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No. A691, EAA Biplane—Nick Ziroti's flying-scale, R/C model uses .40 engine and full-house gear. 38" span wings, semisymmetrical foil, box-and-stringer type fuselage. Two sheets.

Price—\$2.50.

No. A692, Miracle Worker—John Blum's control-line trainer; learn to fly combat, carrier, stunt. Easy-to-build profile model. .35 engine.

Price—\$1.50.

No. A694, Montana Duster—R/C Class-C stunter by Simon Dreese, semi-scale appearance. Foam wings and simplified structure cut assembly to 6 hrs. Two sheet plans.

Price—\$3.00.

No. A696, New Englander—George Murphy's 1/2A Free-Flight for competition. Rapid climb, floating glide. Good for the flyer eager to try contests.

Price—\$1.50.

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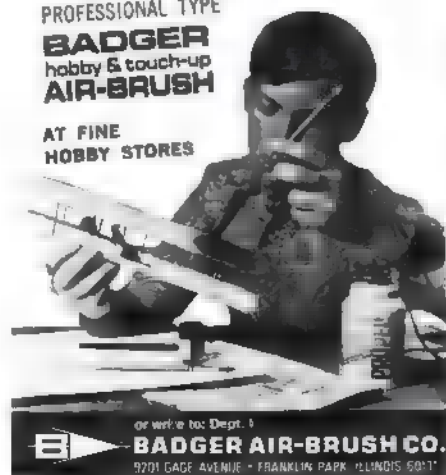
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stabilizer ~~may~~ be final ~~assembly~~ and covered at this point, if desired.

The fuselage sides are made from 1/4 x 2 x 36" medium sheet. Cut the two sides from a 1/4" wide sheet if necessary. Cement the 1/4 x 3/8" hatch doublers where shown on the plan. Epoxy the wing-tongue braces in place. Use epoxy on all the wing-tongue joints.

Mark former locations on the inside of each fuselage side. Join the sides with formers, F-3, 4 and 5. With these in place, the sides should be parallel and square to each other. When dry, pull together at the nose and tail and install the remaining formers.

Cut the skid from 1/4" plywood. Bend the 1/8" diameter wire wheel mount to shape and cement to the skid with metal straps. Retain the wheel permanently in place. Cover the tape. Epoxy the skid and wing tongues in place.

Cement the 1/4" plywood motor-mount plate and lower block in place. The block should overhang F-4 at least 1/16" on either side. Cement the three N-1's in place. Recess the top one to lay along the motor mount. Install N-2 and N-3. Cut out the center of N-2 to accept a wedge tank on edge. Epoxy in place after modifying the filler, vent and feed to suit.

Plank the nacelle on bottom of the fuselage with 1/8 x 3/8" strips. Drill the motor mount for the engine to be used and install with blind-nuts. Remove the engine and cement side block next to the motor mounts.

Trim the sides on the tail so the stabilizer is a good fit. Maintain a zero-degree incidence setting in relation to the centerline. Cement in place, checking angles to assure it will be on correctly.

Before the top of the fuselage is planked install the servos and pushrods. Get the linkages working as required and then re-plank the servos. Plank the top with 1/8 x 3/8" strips. Do not cement them to the sides along the edge of the removable hatch. Cover the nacelle pylon with 1/16" sheet with the grain vertical.

Cement the nose and tail blocks in place. When dry, carve and sand the fuselage to shape. Cut the hatch free and remove. Cement the prop-are block between the plank-ing and to F-3A. Temporarily install the engine and prop. Check that there is clearance through the cut-out for the prop.

Final-sand the fuselage, and finish with whatever material and procedure you prefer. I used a coat of clear dope followed by a couple of coats of dope-talc sealer, sanding between each coat. The fuselage was then covered with light Silkspar and four coats of dope applied again, sanding between each coat. Color dope was sprayed on. Two coats are adequate.

The wing and stabilizer were covered with Coverite, with three brushed coats of clear and two coats of color sprayed on. My model was painted all white with a red and blue stripe on the stabilizer tips. The canopy is metallic blue, and anti-glare panel dark blue. The engine nacelle and pylon should be silver, but I left them white.

When the finishing is complete install the engine and radio equipment. Add weight to the nose if necessary to place the center of gravity as indicated on the plan. Mine did not need weight.

If there are no warps and the C.G. and decalage are correct, test flights should be straightforward. My first flight was made with an engine run about 30 seconds, just in case it was badly out of trim. It is easier to fight the stick for 30 seconds than for two minutes. This first flight proved that the anticipated trim was close enough to try a full tank. The second flight was terminated over a half hour later because I thought my neck was going to break if I had to look up for another minute. After a rest a second flight was made for about 20 minutes.

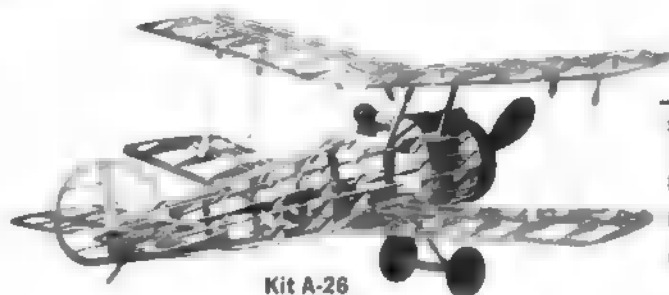
These two flights alone convinced me I had been missing a lot of fun that gliding has to offer. When I bring the Cyclone to the field now, a chaise longue goes with me.

they're the

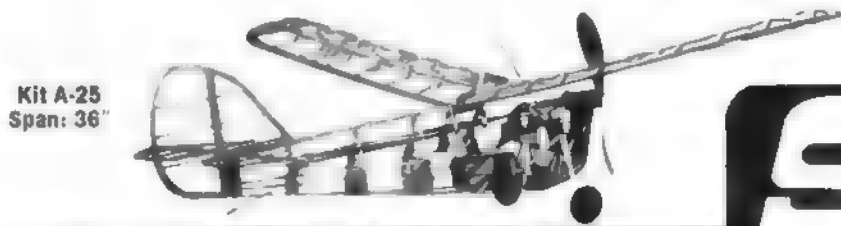
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You Said It

Continued from page 10

magazine on this would, I'm sure, encourage a lot of hesitant newcomers.

My thanks to Heathkit for shrinking their receiver-kit and coming up with a price a lot easier for the beginner to swallow.

Don't ever lose the quality of your magazine.

Jerome Sandon, Billings, Mont.

Any single-channel sets?

I am a modeler, and I am just starting in R/C. I have had a tow-line glider, several control-line planes, and a small rubber-powered plane. AAM is my favorite magazine and I always read "You Said It" twice. I have read things I'd like to ask about.

1) My friend has a 6-channel reed system gathering dust on a shelf. 2) Many old-timers have old single-channel sets sitting on shelves—maybe you or somebody who reads this letter will have an old set to sell. It would be a shame not to have good sets used. Maybe other control-line graduates have the same idea. I'm 13.

Doug Hettinger, Glen Ellyn, Ill.

Someone cares

In regard to the letter entitled "No one cares" in "You Said It" in your May issue, I think it only fair to say that not all R/C modelers are snobbish—those Robert Hayman encountered in the southern Westchester area in New York.

After I finally assembled a complete Galloping Ghost rig from Ace and World Engines kits, and installed it in a Borans Buggy, I proceeded to slowly destroy the Borans Buggy. I then built an Astra-Mite and installed my gear in it. About that time I found a man in Port Isabel, almost 100 miles away, who flies R/C.

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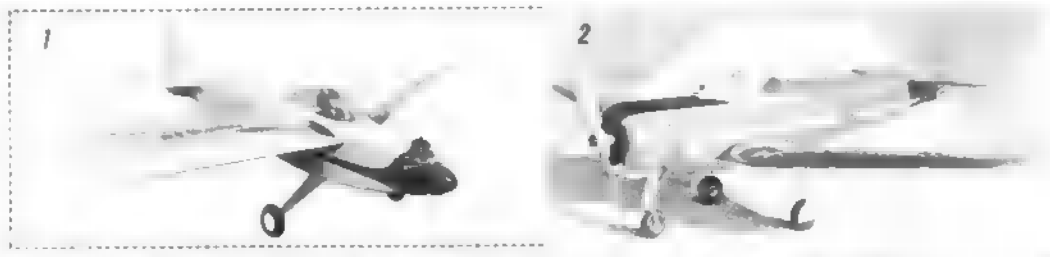
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YAK-18 Claude McCutcheon's fabulous exact-scale replica of this world-famous aerobatic plane will compete in the R/C Scale Internats in Germany this year. Sig's superb kit of Claude's YAK-18 will be available at dealers soon after this ad appears. Spanning 72-1/2", for .60 engines, the kit features 7" x 9" Alum. Cowl, D&D Molded Canopy, Formed Landing Gear, Color Decals, plus THREE sheets of Highly Detailed Plans (containing ample "scale presentation material" on full-size sheet). \$45.95



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4 x 2	224	1/8 x 1/8 x 1/8	7	1 x 3	186
4 x 3	230	1/8 x 1/8 x 1/8	7	1 x 3	186
4 x 4	236	1/8 x 1/8 x 1/8	7	1 x 3	186
1/32 x 3/2	374	1/32 x 1/8	3	LENGTHS	
1/16 x 3/2	378	1/16 x 1/8	3		
1/8 x 3/2	384	1/8 x 1/8	3	1/2 x 3	192
1/4 x 3/2	390	1/4 x 1/8	3	1/2 x 3	192
1/2 x 3/2	396	1/2 x 1/8	3	1/2 x 3	192
1/32 x 4	434	1/32 x 1/8	3	1/2 x 3	192
1/16 x 4	438	1/16 x 1/8	3	1/2 x 3	192
1/8 x 4	444	1/8 x 1/8	3	1/2 x 3	192
1/4 x 4	450	1/4 x 1/8	3	1/2 x 3	192
1/2 x 4	456	1/2 x 1/8	3	1/2 x 3	192
3/2 x 4	462	3/2 x 1/8	3	1/2 x 3	192
3/2 x 5	468	3/2 x 1/8	3	1/2 x 3	192
3/2 x 6	474	3/2 x 1/8	3	1/2 x 3	192
3/2 x 7	480	3/2 x 1/8	3	1/2 x 3	192
3/2 x 8	486	3/2 x 1/8	3	1/2 x 3	192
3/2 x 9	492	3/2 x 1/8	3	1/2 x 3	192
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3/2 x 26	594	3/2 x 1/8	3	1/2 x 3	192
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3/2 x 49	732	3/2 x 1/8	3	1/2 x 3	192
3/2 x 50	738	3/2 x 1/8	3	1/2 x 3	192
3/2 x 51	744	3/2 x 1/8	3	1/2 x 3	192
3/2 x 52	750	3/2 x 1/8	3	1/2 x 3	192
3/2 x 53	756	3/2 x 1/8	3	1/2 x 3	192
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3/2 x 94	1002	3/2 x 1/8	3	1/2 x 3	192
3/2 x 95	1008	3/2 x 1/8	3	1/2 x 3	192
3/2 x 96	1014	3/2 x 1/8	3	1/2 x 3	192
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3/2 x 99	1032	3/2 x 1/8	3	1/2 x 3	192
3/2 x 100	1038	3/2 x 1/8	3	1/2 x 3	192

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R/C World

Continued from page 32

local affair. The Nationals will count in the point totals, as will all AMA-sanctioned meets from April 5 through Aug. 17.

Each AMA-chartered club will be allowed one meet for points purposes. Monthly listings will be made available by RCIA of point standings. Flying will take place at the club field of CCRC, which has a paved runway 30 x 300', and all needed additional facilities for a top-grade meet. Events will include Class C Expert Pattern, sport class pylon and probably limbo. Only the top 30 flyers are eligible for Pattern, but all other events will be open. Cash prizes. Len Purdy will be C.D. (he is also VP-Sec. of RCIA). Further info from Harper, or from RCIA Exec. Sec. Ara Palmer (Radio Control Industry Assoc., Briarwood Rd., Oakwood, Ga. 30566).

Contest Calendar

Continued from page 48

Flying Field, A. Schaefer CD, 4206 Virginia Ave., St. Louis, Mo. 63111. Sponsor: St. Louis Yellow Jackets.

Aug. 17 — Canton, Ohio (AA) Canton RC Club RC Meet. Site: Sherr S. E. Club Field, G. Villard CD, 1301 23rd St., N. W. Canton, Ohio 44708.

Aug. 17 — Green Bay, Wis. August Fun Fly for 4 Spec. Fun Events, at least 1 for Jr. Site: Austin Straubel Field, R. Cowles Jr. CD, 2424 Ducharme Lane, Green Bay, Wis. 54301. Sponsor: Green Bay RIF Club.

Aug. 17 — Lincoln, Nebr. (AA) Aero Design Summer CL Meet. Site: Woods Park, 33rd & O St. J. Mack CD, 851 N. 42nd, Lincoln, Nebr. 68503.

Aug. 23-24 — Orange, Mass. (AA) New England RC Championships. Site: Orange Municipal Airport, A. Bachand CD, 33 Carver Rd., Framingham, Mass. 01701.

Aug. 23-24 — St. Charles, Mo. (AA) McDonnell 12th Annual RC Meet. Site: Conductron Corp. W. Feldmeier CD, 2855 Clearview Dr., Normandy, Mo. 63121. Sponsor: McDonnell Club.

Aug. 23-24 — Decatur, Ala. (AA) 4th Decatur MAC Annual RC Contest. Site: Courtland Air Base, E. Minter CD, 2317 Calumet Ave. S. E., Decatur, Ala. 35601.

Aug. 24 — Chardon, Ohio (AA) CRC 7th Annual

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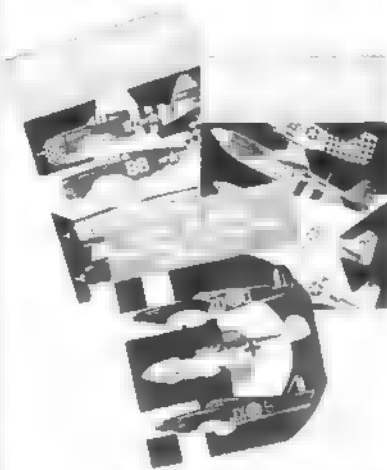
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Aug. 31 — Fresno, Calif. (A) Fresno Monthly FF Contest. Site: Near Kerman. F. Gallo CD. 1725 Kenmore St. W. Fresno, Calif. 93703. Sponsor: Fresno Gas Model Club.

Aug. 31 — Chicago, Ill. (AA) Illinois Iowa Aeronautical Assn. CL Meet. Site: Cook County Forest Preserve. G. Johnson CD. 6810 S. Crandon, Chicago, Ill. 60649.

Sept. 1 — Middlesex, N. J. (AA) MMAC 1st Annual CL Contest. Site: Mountain View Park. A. Koenig CD. 1133 Frase St., So. Plainfield, N. J. 07080.

Sept. 1 — Salem, Ohio RC Short Circuits Club Annual Contest. Site: Quaker City Drag Strip. J. Marshall CD. RD No. 5, Lisbon, Ohio 44432. Sponsor: RC Short Circuits Club.

Sept. 6-7 — Fiskdale, Mass. (AA) 4th Annual N. E. Hydro Radio Plane RC Championships. Site: Brimfield Dam. J. Ross CD. 19 Sterling Dr., Dover, Mass. 02030. Sponsor: New England RC Modelers.

Sept. 6-7 — Amarillo, Tex. (AA) ARKS 9th Annual RC Meet. Site: Club Flying Field. B. Irwin CD. 3302 Lewis Lane, Amarillo, Tex. 79109. Sponsor: Amarillo RC Society.

Sept. 6-7 — Chesapeake, Va. (AA) TRC 4th Annual AA RC Meet. Site: Fenitress Naval Air Field. M. Woolard CD. 4122 4th St., Chesapeake, Va. 23324. Sponsor: Tidewater RC.

Sept. 6-7 — Dayton, Ohio (AA) Dayton Buzzin' Buzzards CL Meet. Site: Municipal Flying Circles. J. Martin CD. 551 Aberdeen, Dayton, Ohio 45419. Sponsor: Dayton Buzzin' Buzzards.

Sept. 6-7 — Nedrow, N. Y. Syracuse RC Fly-O-Rama. E. Izzo CD. 3950 Highland Ave., Skaneateles, N. Y. 13152. Sponsor: Syracuse ARCS.

Sept. 7 — Parkersburg, W. Va. Skysharks Fun Fly. Site: Club Field. G. Villard CD. 3301 23rd St. N. W., Canton, Ohio 44708. Sponsor: Vienna Skysharks RC.

Sept. 7 — Bong Field, Wisc. (AAA) 26th Annual Midwestern States FF Championships. P. Sotlich CD. 3611 W. 62nd St., Chicago, Ill. 60629. Sponsor: Chicago Aeromats.

Sept. 7 — College Park, Md. (AA) Eastern U. S. Indoor Championships. Site: Cole Field House, Univ. of Md. G. Buck CD. 4215 Howard Rd., Beltsville, Md. 20705. Sponsor: DC Maxcutters.


Sept. 13-14 — Marietta, Ga. (AA) Masters RC Tournament and Air Races. Site: CCR Field. L. Purdy CD. Rt. 1, Oakwood, Ga. 30566. Sponsor: Cobb County RC.

Sept. 13-14 — Atlanta, Ga. (AA) Southern RC Trade Show. Site: Marriott Motor Hotel. L. Purdy CD. Rt. 1, Oakwood, Ga. 30566. Sponsor: Cobb County RC.

Sept. 13-14 — West Suffield, Conn. (AA) NCRCC 5th Annual Contest. Site: NCRCC Field. R. Bernier CD. 763 Mather St., Suffield, Conn. 06078. Sponsor: Northern Conn. RC Club.

Sept. 13-14 — Tahlequah, Okla. 1st Annual All Oklahoma State Meet for FF. CL. RC. Site: Municipal Airport. J. Wingo CD. 2618 Elgin, Muskogee, Okla. 74401.

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Sept. 13-14 — Conklin, Mich. (AA) Grand Rapids & Seaway Annual RC Meet. Site: Den Hout Farm, J. Wolfen CD. 3971 Causeway Dr., Lowell, Mich. 48031. Sponsor: Grand Rapids RC Club & Seaway RC Club.

Sept. 13-14 — Denver, Colo. (AAA) 4th Annual Rocky Mountain FF Championships. Site: East Colfax Airport, G. Larrabee CD. 3208 W. Saratoga, Englewood, Colo. 80110. Sponsor: Magnificent Mountain Men.

Sept. 13-14 — Rossier City, La. (AA) SHARKS Annual for RC. Site: SHARKS Field, J. Monk CD. 574 Janet Lane, Shreveport, La. 71106. Sponsor: Shreveport Area RC.

Sept. 13-14 — Rhinebeck, N. Y. (AA) World War I RC Jamboree. Site: Olde Rhinebeck Aerodrome, B. Blake CD. 12 Shale Dr., Wappinger Falls, N. Y. 12590. Sponsor: IBM RC Model Club.

Sept. 14 — Pensacola, Fla. Pensacola Aero Modelers Fly for Fun RC Meet. Site: Corry Field, W. Davison CD. 4422 W. Jackson St., Pensacola, Fla. 32506. Sponsor: Pensacola Aero Modelers.

Sept. 14 — Fountain Valley, Ga. (A) Orange County Thunderbugs CL Monthly. Site: Mile Sq. D. Esslinger CD. 6831 Oxford Dr., Huntington Beach, Ca. 92647. Sponsor: Orange County Thunderbugs.

Sept. 14 — Cleveland, Ohio (AA) Cleveland Recreation & Lakewood Flight Masters CL Meet. Site: Cleveland Model Flying 2500 A. Montegino CD. 3911 Daisy Ave., Cleveland, Ohio 44109.

Sept. 14 — Portland, Ore. (AA) Falcon Annual Invitational for CL. Site: East Delta Park, F. Matheny CD. 75 N. E. Going St., Portland, Ore. 97211. Sponsor: Falcon MAC.

Sept. 14 — Sioux Falls, S. D. (AA) 11th Annual Sioux Falls Gas Model Club RC Meet. Site: Lilyquist CD. 1315 S. Norton Ave., Sioux Falls, S. D. 57105.

Sept. 14 — New Castle, Pa. PORRKS 10th Annual Open RC Contest. Z. Allerton CD. 124 Richelieu Ave., New Castle, Pa. 16101. Sponsor: PORRKS, Inc.

Sept. 14 — Downers Grove, Ill. (AA) Treetown Modelers 3rd Annual AA CL Meet. Site: 19th & Fairview Park, B. Phillips CD. 4431 Stonewall Ave., Downers Grove, Ill. 60515. Sponsor: Treetown Modelers.

Sept. 14 — Bong Field, Wisc. (AA) Annual I.M.A.C. Invitational FAI FF Contest. P. Sotich CD. 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: Illinois Model Aero Club.

Sept. 14 — Ft. Wayne, Ind. (AA) Flying Circuits 15th Annual RC Contest. Site: Smith Field, J. Smith CD. 2925 Ridgeway Dr., Ft. Wayne, Ind. 46806. Sponsor: Flying Circuits Club.

Sept. 20-21 — Huntsville, Ala. (AA) Rocket City RC 9th Annual RC Contest. Site: Old Huntsville Airport, C. Schofield CD. 2709 Briarwood Dr., S. W. Huntsville, Ala. 35891.

Sept. 20-21 — Turlock, Calif. (AA) Western States Pylon RC Championships. Site: Airport, L. DeLateur CD. 2853 Wright Ave., Sunnyvale, Calif. 94087. Sponsor: Pioneer RC Club.

Sept. 20-21 — Billings, Mont. (AA) Billings Flying

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Mustangs RC Meet. Site: Mustang Field, J. Darnielle CD. 344 Barton Blvd. Billings, Mont. 59102.

Sept. 20-21 — Flying Aces Annual RC Meet. W. Johnson CD. 11 Winding Ave. Jamestown, N. Y. 14701.

Sept. 21 — Odessa, Tex. Odessa-Midland 13th Annual FF Contest. Site: Ector Airport, L. [unclear] CD. This [unclear] which was previously scheduled has been cancelled.

Sept. 21 — Hempstead, L. I., N. Y. (AA) 11th Annual LIDS RC Meet. Site: Mitchell Field, J. Van Wymeresch CD. Shaw [unclear] Seaford, N. Y. Sponsor: Long Island Drone Society.

Sept. 21 — Lafayette, Ind. (AA) Lafayette C. J.'s Annual Fall CL Fly In. Site: Market Sq. R. Ramsey Jr. CD. 224 Main St., Lafayette, Ind. 47901. Sponsor: Lafayette Cloud Jockeys.

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Sept. 21 — St. Charles, Mo. (AA) McDonnell 1st Annual RC WW I Meet. Site: Club Flying Site, A. Signorino CD. 11959 Glen Valley Dr., Bridgeton, Mo. 63942. Sponsor: McDonnell RC Club.

Sept. 21 — Alliance, Ohio Balsa Bees RC Contest. Site: Rt. 225 No. Club Field, G. Villard CD. 3001 23rd St. N. W., Canton, Ohio 44708. Sponsor: Alliance Balsa Bees.

Sept. 21 — Bong Field, Wisc. (AA) 7th Annual Chicago Aeromats Fall Old Timers' FF Contest. P. Sotich CD. 3851 W. 62nd Pl., Chicago, Ill. 60629. Sponsor: Chicago Aeromats.

Sept. 21 — Tall, Calif. (AA) OT Scale, Unlimited Antique & 30 Spec. Antique Meet. Site: Gardner Field, G. Wallock CD. 229 LeRoy Ave., Arcadia, Calif. 91008. Sponsor: SCAMPS.

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Longster

Continued from page 17

Long put it this way: "When you take this 1025 thin-wall steel tubing, later on it tends to crack around the weld because it gets too hot. Brazing can be done at a lower temperature and it doesn't hurt the metal." When you consider the loading of this structure, the unsophisticated materials, plus the bone-rattling vibration of the engines in use at the time, you have to agree with Long's philosophy. He proved his design by many hours of trouble-free flying.

His method of attaching the landing gear and wing struts was different but also successful. Sheet-metal disks were drilled in the center like a washer, slipped over the longerons and brazed in place. They were then drilled to take the strut bolts. Simple, clean and strong.

The empennage was a combination of wood and steel tubing. Spruce was used in the wire-braced, stationary surfaces, and the movable elements were built of 1/2" diameter tubing. The brazed-tube struc-

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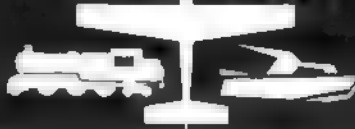


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tures were combined with the wood by means of clips and nails.

The wing used a Clark Y section and was constructed mostly of spruce. Rib gussets were $\frac{1}{16}$ " plywood. The spars were $\frac{1}{4}$ " spruce and of standard construction. The two wing panels were joined at the apex of a razor-back support, like the early Aerona's, and aligned by the streamlined flying and landing wires.

The fuel tank nestled between the pylon atop the wing and held at most three or four gallons of fuel. That little Henderson didn't use much anyway. Remember, it was a converted motorcycle engine.

The landing gear was a tripod of steel tubing and used rubber biscuits for shock absorption. The wheels were usually any light-weight wire wheel that could be found. Sometimes they were surplus from WW I, sometimes they were pulled from an old motor bike. Always, they were without brakes. The tail-skid digging into the sod did the braking.

The seat was $\frac{1}{4}$ " plywood was the floorboard. The rudder-bar support was mounted on the tubing which holds the firewall on modern aircraft. However, during this period there was no FAA and many airplanes had no firewall. The Longster was one of them and it solved a leg-room problem.

The instrument panel was rather simple and typical of the period. A full-panel in those days had an array of, maybe, four instruments. The Longster possibly had a "standard panel" which included: 1) Switch; 2) Tach.; and 3) the Throttle. All were from an old motorcycle most likely.

This then, was the early homebuilt bird. A handcarved prop in front of a screaming Henderson that pulled a bed-sheet-covered airframe along at 50 mph. no radio, no OMNI



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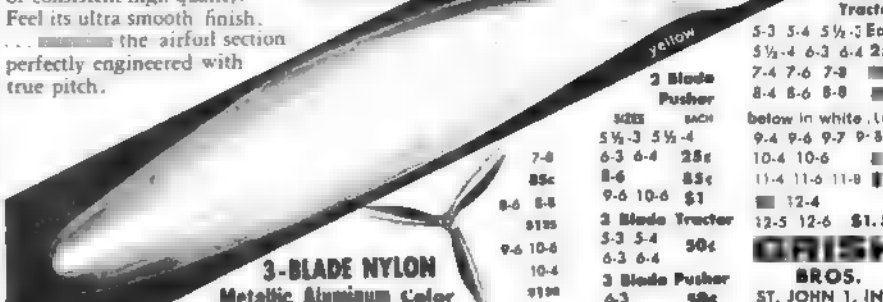
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Men like Les Long and Ed Heath had to

come along during the early '30s, the dark hours of private aviation, to keep the sport alive. They designed and flew their own airplanes in spite of the depression, the restrictions imposed by the government, and a shortage of decent engines.

The Longster would be a good little airplane today, using the same materials and techniques as Long did 30-odd years ago. However, the Henderson could be improved upon and it just so happens that there is a little aircooled 1600-cc automobile engine that is built in Germany...

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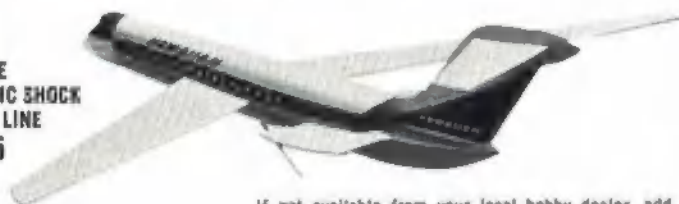
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Getting Started in R/C

Continued from page 38

can be very detrimental to the radio gear. The moisture can "short" out the receiver or servos to cause immediate control failure. And it can over a period of time cause severe corrosion of many parts. Fortunately, these problems are pretty well taken care of by that most pressing problem: waterproofing the R/C gear.

While no builder expects his boat to founder, quite a few do. Also, hulls, prop shafts and other parts can leak, and water can get into the boat interior in rough seas. Boatmen generally apply gaskets to hatch covers and use all possible means to keep water out of the hull. But it does sneak in. Thus, radio parts are often carried in a sealed watertight box of their own.

Such a box might hold the entire radio installation — receiver, all servos, batteries,

connectors and power switch. It is no great problem to seal the holes in the box required for a wire to operate the power switch (or you can get waterproof toggle switches), and for the pushrods to servos. The box makes a very handy "unit installation"; it is easily removed to allow you to work on the equipment, or to shift the installation from one boat to another. At the very least, the receiver and other parts should be put in heavy plastic bags, with emerging wires and linkages tightly wrapped when the end of the bag is closed, and bound with rubber bands.

Thus, we can see that model boating can in general utilize the same equipment and techniques which have been so well proven in the plane field. But this watery hobby has its own special problems to set it apart from model aviation. The fields are similar enough, however, that many hobbyists are very active in both.

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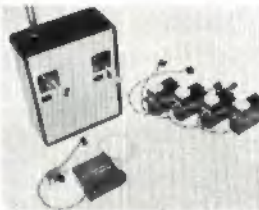
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The most unique and established name in model covering materials. Since its introduction there have been many substitutes in both name and material trying to imitate and duplicate the Silron material and trademark. But in spite of these efforts, Silron continues to set the market pace in both quality and sales. Silron is a true advancement in covering material and we invite you to try this new innovation when covering your next model airplane.

1. Composed of a blend of wonder fabrics and silk
2. Seals with one coat of dope
3. Will not separate when wet
4. Light weight and durable
5. Saves covering time
6. \$1.25 per yard for white and colored
7. Available in one yard, two yard and five yard packages
8. Colors: white, red, blue, gold, green, light blue, pink, silver, turquoise, orange, fuchsia and black

JUST ABOUT EVERYBODY USES SILRON . . . DO YOU?

ROYAL'S EXCLUSIVE SILK

✓ EXCELLENT QUALITY

✓ HEAVY DUTY

✓ CLOSE WEAVE

STRONG AND DURABLE

✓ \$1.79 PER YARD

We Guarantee There Is No Finer Silk Available Regardless of the Cost

AVAILABLE IN ONE, TWO AND FIVE YARD PACKAGES



TWELVE BRILLIANT COLORS

■ WHITE
■ RED

■ BLUE
■ GOLD

■ ORANGE
■ GREEN

● PINK
● SILVER

■ FUCHSIA
■ LIGHT BLUE

■ TURQUOISE
■ BLACK

DEALER INQUIRIES INVITED



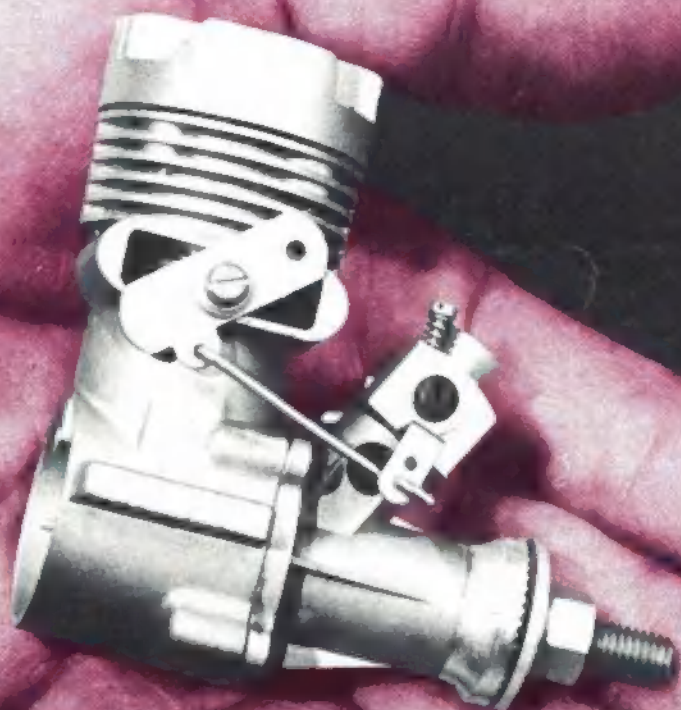
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MRC-ENYA .19V TV



Primary design consideration in the New MRC-Enya 19V engine is given to easy starting and handling, speed, control and long lived, reliable performance. This new family member of The World's Champion R/C Engine line is perfectly suited to power your .19 size digital proportional plane straight to the winner's circle! Control Line stunt competitors will discover exceptional control power surge in this easy handling new design. MRC-Enya Engines are proven champions—The New 19V (both TV and regular) is ready to win for you now—At your Dealers—Regular, \$15.00—TV, \$17.50—Marine, \$20.25.



HOLD IT!

HERE'S MORE POWER FOR YOU
FROM THE WINNING MRC-ENYA ENGINE FAMILY

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